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MANUAL

Manual for Managing Geospatial Datasets In Service Centers

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INTRODUCTION

The Service Center Agencies, along with our partners, are establishing an enterprise geospatial system. This system consists of hardware (including personal computers, network servers, Global Positioning Systems (GPS), field data collection devices, plotters, printers, and digital cameras), and software (including GIS, GPS and camera software) supplied under the Common Computing Environment. The geospatial data (including GIS, GPS and digital imagery is also a part of the overall system architecture.

In order to support better Service Center Agency program management, geospatial data management in the Service Centers will become a standard process under the guidelines presented in this manual. A wide range of geospatial data can be utilized to support agency programs. It will take a high level of organization, training, and support in each state to bring all users of GIS technology to a point where data is used correctly, decisions made on the basis of geospatial maps and data are sound, and the management of data is not overly burdensome.

- Under the standard guidelines, management roles and the accompanying responsibilities are defined at the national, state, and local levels. People at each level in the agency organizations will be asked to take on new functions and responsibilities. This requires a high level of interagency coordination.

- Data that is currently stored in the Service Centers will be consolidated into a standard set of Windows folders. Names of individual folders and files will be standardized. Permissions will be established on each of these folders to ensure that data can be shared and protected as appropriate.

- Methods for downloading data from the FSA and NRCS National Data Centers in Salt Lake City and Fort Worth will become more automated.

- Greater emphasis will be placed on preparing data for movement between computers and between offices. Standard naming conventions will help ensure that file names are unique and consistent.

- There will be an increased emphasis on metadata (i.e., descriptive information about a file or "data about data"). Metadata enables employees; customers and GIS applications themselves to have access to descriptive data details in order to better understand the data's characteristics (e.g., origins, geographic projection, scale, units, quality, etc.).

- The rollout of the CCE computers and servers to Service Centers will bring new data access security features.

- Consolidation of geospatial files and the populating of the shared ***geodata*** directory on the server will prepare Service Centers for the upcoming migration to the XP operating system on desktop/laptop computers. The XP migration will require the reformatting of the hard disk. All geospatial data migrated to the shared server directory will be unaffected.

This manual provides the procedures and standards that will be used to maintain the geospatial data. This manual documents both manual and tool assisted procedures to migrate geospatial data to the network servers; this documentation is provided in Appendix D and Appendix E. Additional procedures and standards will be added to this manual as the enterprise geospatial system is implemented.

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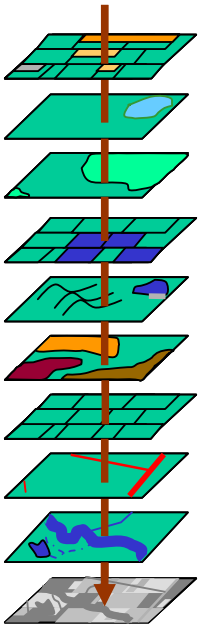
1. Why New Procedures are needed for Geospatial Data

The scope of *geospatial data* includes orthophotography, Global Positioning System (GPS) data, the data collected and produced by Geographic Information Systems (GIS), digital photographs of land features, remote sensing data for the earth's surface and features, and the accompanying attributes and metadata that describe the geospatial data.

Geospatial data has several characteristics that make it difficult to manage:

- The content of a file is often seemingly random strings of numbers and symbols that are difficult for users to read and decipher directly. Therefore, it is difficult to determine what the content of a particular file represents without additional identifying information.
- Data files are often very large, making their movement from machine to machine challenging. You don't want to download a large file from a data warehouse if you already have the most current version on your machine.
- A large number of files are often accumulated. These files have to be stored and preserved, and found quickly when working with a customer.
- The user must make a determination as to whether new data will be managed as a separate dataset, or be merged into an existing larger dataset (such as a county-wide theme).
- It takes a concerted effort to ensure that metadata, the information that describes each of the geospatial datasets, is kept current and accurate. Without accurate metadata, the value of spatial data quickly declines. This has to be a coordinated effort.
- Geospatial data is often difficult and expensive to collect, producing a constant challenge for the user to acquire, and maintain the currency of, the data.
- There are a variety of sources for geospatial data. The user must know the sources, and maintain the linkages to utilize those sources.
- Geospatial data is sometimes shared with neighboring county offices, and with state offices. It is important that the data files are well documented and uniquely named.
- The increased data and access security being provided under the Common Computing Environment requires a certain level of standardization in how and where data is stored.



2. Creating a Folder for your Geospatial Data

A standard folder structure on all field-level computers, and consistent file naming procedures, are essential. Note that this standardization is also critical for upcoming automated processes to update datasets from national data warehouses.

2.1 Geospatial Folder Structure

The standard *geodata* folder structure will be created on all Service Center servers holding geospatial data. The Geospatial data will be installed on the shared (F) drive on the network servers in the Service Center. The top-level geospatial data folder is named "**geodata**". There will be only one shared *geodata* occurrence in any given Service Center, usually on the server's F: drive.

Under *geodata* a number of subfolders are included for ***geospatial dataset categories.*** Additionally, *geospatial dataset categories* are allowed to have subordinate subfolders (as in the case of climate, which has subfolders for precipitation and temperature.) Each category can hold multiple ***geospatial datasets*** (files). The document "Standard for Geospatial Data" gives further details on spatial categories. See section 3.1 for details on locating this document.

The standard folder structure under *geodata* will look like the following sample:

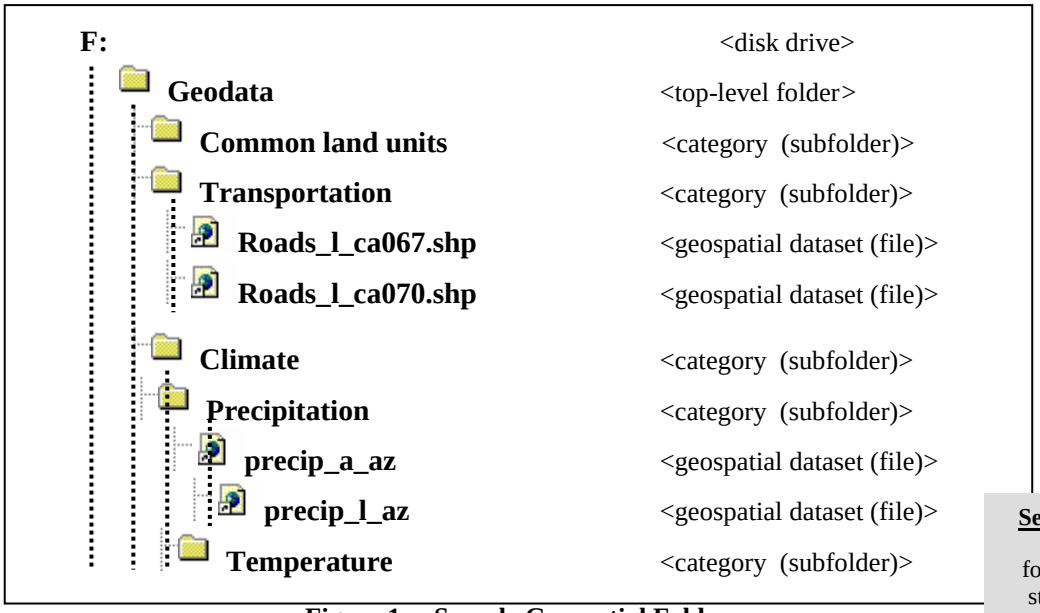


Figure 1— Sample Geospatial Folder

See Appendix A

for the complete standard folder structure.

All shared geospatial data (whether it is "locally-defined" data or nationally-distributed data) will be placed in this standard folder structure; so that local data appears adjacent to any nationally provided data when the user is selecting from a pick list.

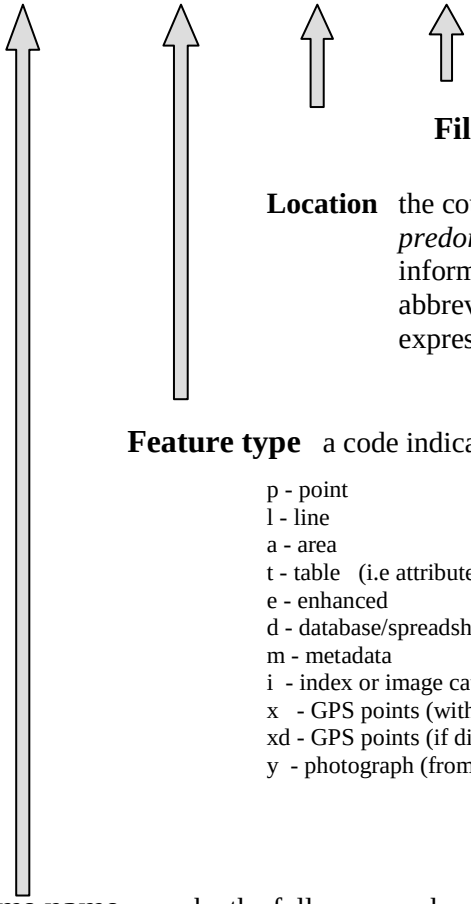
2.2 Naming the Geospatial Files

- Dataset/file names will be **unique** within the entire *geodata* folder. The names should maintain their uniqueness even if folder names are eliminated from the structure. Moving files between computers, and between offices, makes unique file names a necessity. Non-unique file names often result in the loss of data when a file is unintentionally overwritten during the moving of data.

- Naming standards apply to all nationally distributed datasets. It is recommended that the same standards be used for state-defined and locally defined datasets.

- File names contain only the information needed to accurately identify them, and make them unique. The general format is shown below. More detail regarding file name standards is found in *Appendix A*.

Hydro_l_ms035.shp



File extension, as applicable

Location the county FIPS code (e.g. roads_l_mn010.shp) *of the predominate county* in the dataset, plus other identifying information. State codes are expressed as two-letter abbreviations (md, az, TX, etc.). County codes are expressed as the three-digit FIPS number (001, 015, etc.).

Feature type a code indicating the type of data contained in the file:

p - point
l - line
a - area
t - table (i.e attributes in a .dbf file, or other linked files)
e - enhanced
d - database/spreadsheet
m - metadata
i - index or image catalog
x - GPS points (without differential resolution, or of unknown resolution)
xd - GPS points (if differential resolution was used)
y - photograph (from digital camera or scanned photo)

Theme name can be the full name, a short version, or an acronym used to represent the business name of the dataset, e.g. precip, damsites, huc, etc.

When constructing the names for folders and files, the following conventions will be followed:

- File and sub-folder names will consist of **only** the following:

  Lower case letters a-z

  The numerals 0-9

  The underscore "_" character

  The dash "-" character, but only when designating mosaic tiling (x-x). Otherwise the dash is not allowed

- The **first character** in the name shall be **a letter** (a-z).
- The total length of the name shall not exceed **30 characters.**

2.3 Purpose of Standard Folders and Names

GIS usage in Service Centers is expected to create a large number of individual files, many of which will be relatively large. In addition, it is expected that more than 20 common geospatial datasets will be managed and distributed from national geospatial data warehouses.

A standard structure for this data is essential, especially for:

- Movement of data between computers within an office
- Increased movement of data between offices. This factor makes it essential that file names are unique across the organization.
- Consistency as people move between offices.
- The introduction of automated refreshing of common datasets from national or state sources.
- The fielding of national applications that rely on the consistent placement of data within the windows folder structure.
- The sharing of data among agencies
- The distribution of utilities and tools to make the maintenance of files and folders easier.
- Facilitating the backup of data
- Facilitating the versioning of data

The standard geodata folder, and its subfolders, will be installed on the shared (F:) drive of the network server. Files placed in these folders will follow the standard naming conventions.

These standards pertain to all offices.

3. Metadata

3.1 Metadata…the rest of the story

The name of the file may give you a clue as to what it contains but *metadata* provides the additional descriptive information about a file that would otherwise be lost to elapsed time, and an aging memory.

Metadata is simply descriptive information about a data file, i.e. data about data.

When GPS points are collected and stored, or a new file is created using a GIS tool, a few facts need to be documented to remind you, or to tell others, information about that stored file. Metadata includes such facts as what the file contains, what coordinate system was used, what is the accuracy, who to contact for more information, and identifiers, such as bounding coordinates and keywords.

> METADATA
>
> You can do it now…or you can do it later.
>
> Later is harder.

3.2 What Metadata is Required

All geospatial metadata in the federal government is currently guided by the standards of the Federal Geographic Data Committee (FGDC). The FGDC committee has published a metadata standard describing hundreds of metadata facts that can be recorded for each geospatial dataset. The full standard FGDC metadata is quite lengthy and time-consuming to enter and maintain. The Service Center agencies have decided that a smaller subset of the FGDC metadata elements is adequate, and affordable, for agency needs. These core metadata elements are listed and described in the document "Standard for Geospatial Dataset Metadata". See Section 3.1 for information on obtaining this document.

To get started, only a handful (17) of the core metadata elements will be mandatory. The remainder are optional, but should be entered if there is a demonstrated need and the information is available. The following chart lists the mandatory metadata that will be captured for all geospatial files:

Minimum Core Metadata for Geospatial Datasets

Originator	**Contact_Organization** **(or Contact_Person)**
Publication_Date	**Address**
Title	**City**
Purpose	**State**
Progress	**Postal_Code**
Time_Period_of_Content	**West_Bounding_Coordinate**
Source_Scale_Denominator	**East_Bounding_Coordinate**
Map_Projection	**North_Bounding_Coordinate**
	South_Bounding_Coordinate

Chart 1 – Minimum Metadata for Geospatial Datasets

Each element in Chart 1 is defined in Appendix B of this document. Use the standard name listed for each metadata element when adding new metadata.

3.3 Where to Store the Metadata

Metadata is stored in a separate file from the actual geospatial data.

The metadata file is given a name similar to the geospatial file that it describes, and the pair of files (i.e. the geospatial file and the metadata file) will be stored together in the same folder.

3.4 Who Creates the Metadata, and When is it Created

The person who first creates the geospatial file is charged with also establishing the related metadata file. The person who updates the geospatial file is responsible for updating the metadata after each round of changes, as needed.

It is important to prepare the metadata as soon as a geospatial file has been saved, especially for shared files. Also, it is much easier to capture the metadata while the information is fresh, rather than try to reconstruct it later

3.5 How to Store Metadata

The core metadata can be collected and stored as a text file, in a database/spreadsheet, or in a file generated by ESRI ArcCatalog. Metadata files generated by ArcCatalog will have the same name as the data file, but with an "xml" extension. Wherever possible, a metadata file will be given a name similar to the geospatial file that it describes, and the pair of files (i.e. the geospatial file and the metadata file) will be stored together in the same folder.

Tools for collecting metadata are becoming available. A useful tool for metadata management is ESRI ArcCatalog. This tool is especially useful in that it automatically extracts bounding coordinates for the data set. Bounding coordinates can be difficult to obtain unless the process is automated. Current plans are to deploy ESRI's ArcCatalog, as well as other ArcGIS tools, to Service Centers in the Summer of 2003.

The following page lists two methods for recording metadata. These methods are currently available on most office computers.

STORING METADATA

As a text document:

If the metadata is stored in a text document, it will appear as pairs of data element names followed by values. Example:

Originator: James Smith

Publication_Date: 9/15/2001

Title: Common Land Units of Boon County, Iowa

Purpose: This dataset was prepared by digitizing tracts and fields from 1:660 scale rectified aerial photos. Tracts and fields were digitized on-screen with a digital orthoimage background using ArcView. Quality assurance was provided by the Aerial Photo Field Office (APFO) in Salt Lake City. This dataset consists of geo-referenced digital map data and computerized attribute data…

Progress: Complete

An example of text metadata including all of the minimum metadata elements is presented in Appendix B for a SSURGO data file.
This document of metadata is given the same name as the geospatial dataset it describes, with a feature type of 'm', and a file extension (.txt, .doc, etc). Example:

clu_m_ia015.txt (the related geospatial dataset is clu_a_ia015.shp)

In a database or spreadsheet:

If the metadata is stored in a database or a spreadsheet, the metadata element names will be the column names, and a row of metadata will be created for each geospatial dataset. Example:

Dataset Name	Originator	Publication_date	Title	Purpose
clu_a_ia015.shp	James Smith	9/15/2001	Common Land Units of Boon Cnty, Iowa	A dataset of digitized Land Unit Unit …
clu_a_ia021.shp				This dataset consists of georeferenced digital map…

The database or spreadsheet describes multiple geospatial datasets. It should be given a name that describes its content. Examples:

clu_m_ia.mdb, clu_m_ia.xls

3.6 Related Standards

This document is based on three Service Center Modernization Initiative (SCMI) Standards:

Standard for Geospatial Dataset File Naming

Standard for Geospatial Dataset Metadata

Standard for Geospatial Data

These documents can be found at the SCMI Data Team web site hosted on www.fsa.usda.gov/scdm under the category "Documents & Presentations".

Additional information regarding the Federal Geographic Data Committee metadata standards can be found on the committee's website (www.fgdc.gov).

3.7 Definitions

Geospatial data are defined as either local or national depending on where the standards are established.

Local Data	Data for which the standards governing its collection, naming, and documentation are set locally, i.e. below the national level. (Note that nationally-defined data can be collected locally; but it is not called "local" data because the standards for its collection were set above the state level.) County tax assessor data is an example of a local data type.
National Data	Data for which the standards for its collection, naming, and documentation have been set at a national level by an agency or jointly by several agencies, or according to the standards of an external agency or organization. National data (1) has international, national, USDA, or agency-wide application, (2) contains information that is used/shared directly in making national program decisions, or (3) is used/shared in multiple agencies, offices, states, or other internal/external organizations. USDA SSURGO soils data is an example of a national data type.

In the Service Center data are either Common, Shared or Unique depending on the type of data.

Common data	Data jointly owned, used, and managed by the Service Center partners. Examples of common data include the base geospatial themes, such as Orthoimagery data.
Shared data	Data owned and managed by a specific Service Center partner, and shared by other partners (i.e., one agency maintains the data, while the other partner agencies access and use the data.) Common Land Unit data is an example shared data type as it is owned and managed by FSA but shared with NRCS.
Unique data	Data owned and managed by a specific Service Center partner but not shared. The data is usually specific to a particular program administered by only one agency. Disaster events\fsa_facilities is an example of a subfolder that contains unique data that is only accessed by a small number of FSA employees

4. Roles and Responsibilities for Geospatial Data

The shared *f:/geodata* folder on the Service Center server will be used by a number of people to perform a number of services and functions in the Service Center, including:

- Sharing information with co-workers and partner agencies.
- Providing a staging area for downloading nationally developed and state-developed data themes, and making the data accessible to all GIS users.
- Providing a place to store spatial data that is to be backed-up on a regular basis. Backup processes will focus on only that data that is locally updated.
- Sharing data with outside agencies, including Conservation Districts, state and local governments, other USDA agencies, etc.

In order to manage the shared *geodata* folder to meet the business requirements of all three agencies, user groups will be established. Employees assigned to these user groups will have read or read and write permissions to the subfolders in the f:/geodata folder depending on their duties and responsibilities and the type of data. The administrative tasks to maintain the user groups and permissions will fall on the IT staff and Geodata Administrators in each state.

4.1 Local Geodata Administrators

Each Service Center will have Local Geodata Administrators who have the authority and permissions to maintain the content and data integrity of files and folders under the shared geodata directory. This function may be performed in the Service Center or remotely. The Local Geodata Administrator:

- Has the ability to add, update, and delete folders and files under the F:\geodata folder.
- Monitors the currency of local data files, and in coordination with the State Geodata Administrator can refresh national or state-developed datasets as appropriate.
- Maintains the security and integrity of the data.
  - Administers the assignment of read and write permissions to users and groups for subfolders under the F:\geodata directory. See *Appendix C* for additional information on permissions and groups.
  - Ensures backup of the data, as appropriate, to on-site and off-site locations

4.2 State Geodata Administrator(s)

The State Geodata Administrator is a person from one of the partner agencies with responsibility that is jointly assigned by the NRCS State Conservationist, FSA State Executive Director and RD State Director in each State to manage shared geospatial datasets for all agencies and partner organizations within the state. The State Geodata Administrator serves as a single point of contact (POC) for CCE management policies and recommendations regarding geospatial data. One or more backup administrators may be assigned from the same, or a different, agency. The backup administrators will help the identified State Geodata Administrator to manage geospatial data in a manner that is consistent with CCE geospatial data policies and recommendations. The State Geodata Administrator works with the IT staff and the State GIS Team to:

- Administer the transfer of geospatial datasets and metadata from national and state sources to the appropriate Service Centers.

- Monitor and maintain quality control for data and metadata used in state and local offices. Includes monitoring adherence to technical standards and policies.
- Provide training to local data administrators and stewards.
- Coordinate with National Geospatial Data Centers, and other national, state and local agencies and organizations, and National Application Development Centers to facilitate the acquisition and transfer of data.
- Maintains data tracking in the Electronic Acquisition and Tracking System (EATS). EATS will contain a listing of all of the GIS data themes present at each Service Center that are National, Common and Shared. Procedures for populating EATS will be distributed to State Geodata Administrators. Knowledge of which data are in Service Centers is critical for national GIS application deployment.
- Maintain the state-level geodata directory and content.
- Leads the State GIS Team that includes representative from NRCS, FSA and RD and from partner organizations if appropriate.

4.3 National Data Stewards

The National Data Steward is a business-area expert who is assigned responsibility by the National Executive Sponsor for the content of the data and database. The Data Steward establishes definitions and domains for data elements; sets the procedures for collecting and certifying data and metadata; and manages the overall storage, maintenance, and distribution of the data and metadata. Certain data steward responsibilities may be re-delegated to state and local data stewards who are responsible for portions or copies of a data set.

The National Data Steward(s) will:

- Act as the designated authority and point of contact for all business-area decisions concerning the data.
- Establish and maintain business rules and consistent definitions for data elements, to including data quality and certification standards.
- Establish standards to ensure the validity, accuracy, and completeness of the physical data and supporting metadata, to include:
    - A process for the creation, storage and dissemination of data sets and associated metadata.
    - A process and monitoring system to certify that the data meets quality standards. .

- Provide for the security of the data assets, to include:
    - Coordinate with agency security officers.
    - Recommend availability, security and access authority for the data.
    - Identify security requirements under the Freedom of Information Act, and for data that must be protected under the Privacy Act.

4.4 National Geospatial Data Centers

The National Cartographic Center in Ft. Worth and the Aerial Photography Field Office in Salt Lake City are national repositories for geospatial data and metadata used by the partner agencies. The Data Centers:

- Coordinate the distribution of geodata products with the State GIS Team and Geodata Administrators.
- Acquire, integrate, maintain, and archive agency geospatial data.
- Provide quality assurance for geospatial data and metadata.
- Disseminate data to States, Service Centers, and other customers.
- Provide for the sustainability of national data resources.

Appendix A. – STANDARD GEOSPATIAL FOLDER STRUCTURE & NAMING CONVENTIONS

The *geodata* folder will have the following categories (sub-directories) under it. File-naming formats are given under each subfolder. The single-letter "feature type" (a, l, x, etc.) can vary to accurately describe the contents of the dataset, i.e. whether the file contain points, lines, etc. State codes will be expressed as two-letter US Postal Office abbreviations (md, az, tx, etc.). County codes will be expressed as the three-digit FIPS number (001, 015, etc.)

The document "Standard for Geospatial Dataset File Naming" gives further details on spatial categories. See section 3.1 for details on locating this document. In the future refer to this document on the website for the most current naming standard.

The column marked **'B'** in the chart below contains the default determination as to whether or not (Y or N) the directory will be backed up on a regular basis. GIS data obtained from the National Data Centers, and from the State Office, can be restored easily by either downloading new copies of the data or reloading from the original tape or CD. It is not necessary to continually back up these large datasets stored on the Service Center server. The backup of individual folders can be modified to meet local needs.

In some areas Service Centers may use geospatial data files that were obtained from state or local sources. For example, more detailed color DOQs might be available from a local source. Alternatively, unique local problems may require use of geospatial data that are not typically used by Service Centers. For example, Service Centers in Tennessee use BLM strip mine data. In both of these cases, the additional geospatial data should be placed within an existing geodata subfolder. The detailed, color DOQs should be placed in the ortho_imagery subfolder and a file naming convention should be developed and approved by the State Geodata Administrator. With the BLM strip mine geodata files, there are a number of possible subfolders that could be used (e.g., geology, land_use_land_cover, land_sites, etc.). The State Geodata Administrator should help make the subfolder selection as well as help develop the file naming convention for files of local or state interest.

B	Subfolder Name	File Name	Description
	F:\geodata		Top folder in the directory structure. The following are subfolders for major theme categories under the primary geodata folder:
Y	**air_quality**	File naming to be determined.	No files delivered to date.
N	**cadastral**	ntlparks_a_<stnnn>	National Park Polygon data
		ntlparks_l_<stnnn>	National Park Line boundaries for cartographic display
		plss_a_<stnnn>	Public Land Survey System polygon data
		plss_l_<stnnn>	Public Land Survey System boundaries (township/range/section) for cartographic display

B	Subfolder Name	File Name	Description
N	**census**	File naming to be determined.	Demographic data tabulated by census geography (e.g.,block, tract, county) from Bureau of Census. <yyyy> is year. Other base map TIGER features such as road, hydro etc are in appropriate theme folders.
N	**climate\precipitation**	precip_a_<st>	'precipitation' is a subfolder of 'climate'. Annual precipitation (sum of 12 monthly maps) for the entire state. <st> is equal to the state two character postal abbreviation
		precip_l_<st>	Annual precipitation boundaries for cartographic display for the entire state
		precip<mmm>_a_<st>	Mean (1961-1990) Monthly precipitation data for the entire state. <mmm> is equal to the three-letter abbreviation for the applicable month
		precip<mmm>_l_<st>	Monthly precipitation boundaries for the entire state. <mmm> is equal to the three-letter abbreviation for the applicable month
N	**climate\temperature**	File naming to be determined.	'temperature ' is a subfolder of 'climate'. No files delivered to date.
Y	**common_land_unit**	dlu_a_<stnnn>	District Land Unit (DLU) – Farm field boundary
Y	**common_land_unit\fsa_clu**	crp_t_<stnnn>	CRP data linked to CLU. (May be in the form of converted .dbf files. Would include compliance and crop reporting.)
		clu_a_<stnnn>	Common Land Unit (CLU) Farm Field Boundary
		wet_p_<stnnn>	FSA wetland point data
Y	**conservation_practices**	File naming to be determined.	Planned and applied conservation practice data aggregated for the Service Center. Toolkit group will resolve naming. Data is developed locally.
Y	**cultural_resources**	File naming to be determined.	Archeology, state historic sites, Native American settlements and burial grounds, National Park Service National Register of Historic Places, National Historic Landmarks and National Natural Landmarks. A general category and no files delivered to date.
Y	**disaster_events**	<disaster type>_a_<stnnn> _ <identifier>	Describes the area (or points if feature type is a 'p') affected by a natural disaster, with a unique name or identifier for the event. Disaster type describes whether the event was a flood, storm, etc.

B	Subfolder Name	File Name	Description
			The unique event identifier is a date, unless some other identifying code is assigned, such as a version number. State and county can be included depending on the scope of the disaster area.
Y	**disaster_events\ fsa_facilities**	ffl_p_<stnnn>	Point locations within the county of Fertilizer Facilities
		ffsfl_p_<stnnn>	Point locations within the county of Food, Feed, and Seed Facilities
Y	**ecological**	File naming to be determined.	No files delivered to date.
N	**elevation**	contour_l_<stnnn>	1:24,000 USGS hypsography line data
		ngs_p_<stnnn>	Point location and description of National Geodetic Survey Monuments
		ned_<nnnnn>	1:24,000 USGS National Elevation Dataset (NED) merged into a one-degree seamless raster format with elevations portrayed in decimeters.
		nez_<nnnnn>	Reprojected 1:24,000 USGS National Elevation Dataset (NED) from adjacent UTM zone merged into one-degree block
		nedshd_<nnnnn>	1:24,000 USGS National Elevation Dataset (NED) merged into a one-degree seamless shaded relief TIFF and bil formats.
		nezshd_<nnnnn>	Reprojected 1:24,000 USGS National Elevation Dataset (NED) from adjacent UTM zone merged into a one-degree seamless shaded relief TIFF and bil formats.
		nedmeta_<nnnnn>	1:24,000 USGS National Elevation Dataset (NED) metadata for individual quadrangles in shapefile format.
		nezmeta_<nnnnn>	Reprojected 1:24,000 USGS National Elevation Dataset (NED) metadata from adjacent UTM zone for individual quadrangles in shapefile format.
		<usgs standard>	USGS Digital Elevation Model (DEM) ASCII file. USGS standard lat/long name with a “d” leading character. File extension is .dem
Y	**endangered_habitat**	File naming to be determined.	No files delivered to date.
Y	**environmental_easements**	wrp_a_<st>	Aggregation of Wetland Reserve Program (WRP) easements for State Service Centers. Data developed locally
		wrp_a_<stnnn>	Aggregation of WRP easements for a

B	Subfolder Name	File Name	Description
			specific Service Center area. No files delivered to date. Data developed locally
Y	**environmental_easements \fsa**	flpce_a_<stnnn>	Farm Loan Program Inventory Property (Conservation) Easements. Data developed locally.
		flpct_a_<stnnn>	Farm Loan Program Conservation Transfers. Data developed locally.
		dfn_a_<stnnn>	Debt for Nature easements. Data developed locally.
N	**geographic_names**	gnis_p_<stnnn>	Geographic Names Information Systems point data from GNIS cultural and topographic non-populated places file
Y	**geology**	File naming to be determined.	No files delivered to date.
N	**government_units**	boundary_l_<stnnn>	1:24,000 USGS boundary line data
		boundary_a_<stnnn>	1:24,000 USGS boundary polygon data (state park, wildlife refuge, etc.)
		congdist_<nnn>_a_<st>	Full US Congressional districts 104 – 107 from Census TIGER data. <nnn> is the congress number e.g. 106
		cities_p_<stnnn>	Geographic Names Information Systems point data from GNIS populated places file
		cnty24k_a_<stnnn>	1:24,000 county boundary polygon data
		cnty24k _l_<stnnn>	1:24,000 county boundaries for cartographic display
		cnty100k_a_<stnnn>	1:100,000 county boundary polygon from Census TIGER data
		cnty100k_l_<stnnn>	1:100,000 county boundaries for cartographic display from Census TIGER data.
		manfetr_a_<stnnn>	1:24,000 USGS manmade feature polygon
		manfetr_l_<stnnn>	1:24,000 USGS manmade feature line data
		rcd_a_us	Full US Resource Conservation & Development Areas polygon data
		state_a_us	Full US state polygons
		state_l_us	Full US state boundaries for cartographic display
		swcd _a_us	Full US Soil and Water Conservation District polygon data
		urban_a_<st>	1:100,000 urban area polygons from

B	Subfolder Name	File Name	Description
			Census TIGER data
		zip_p_us	Full US zip code centroids (points). GIS Implementation Team to identify data source
Y	**hazard_site**	File naming to be determined.	No files delivered to date
N	**hydrography**	damsites_p_<stnnn>	National Inventory of Dams point data
		femaq3_a_<stnnn>	Federal Emergency Management Agency (FEMA) polygon data
		hydro24k_l_<stnnn>	1:24,000 USGS line data
		hydrorf_l_<stnnn>	1:100,000 Environmental Protection Agency (EPA) Reach File line data (state-wide data set)
		hydrorf_<xxxxxxxx>_l_<st>	1:100,000 Environmental Protection Agency (EPA) Reach File line data (8-digit unit sets). <xxxxxxxx> is the 8-digit Hydrologic Unit Code
		hydro100k_l_<stnnn>	1:100,000 Census TIGER line data for hydrology
		ntlhydro_l_<stnnn>	1:100,000 USGS/EPA National Hydrography Dataset line data
		ssara_p_<stnnn>	Sole source aquifer recharge areas
		watbod_a_<stnnn>	1:100,000 Census TIGER area features for water bodies hydrology
Y	**hydrologic_units**	huc_a_<stnnn>	1:24,000 polygon data of the Hydrologic Units at the 5th and 6th level
N	**imagery**	landsat_<stnnn> <ppprrr> <date>	Other imagery files such as satellite or non-standard imagery. <ppprrr> is path and row. <date> is the acquisition date. Landsat imagery will also have an embedded st and county fips code <ssccc>.
Y	**imagery\compliance_fsa**	comp_<nnnnnnn> <date>	Annual Compliance imagery – *other* than 35 mm slides. <nnnnnnn> equates to two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle numbers in the one degree block
		slides_<stnnn> y<yy> c<n>_<fffeee>	Scanned 35mm or digital slides. y<yy> is the year, and c<n> is the cycle number. <fffeee> is the flight and exposure number. Example: slides_va013y02c1_048009.tif
		slides_<stnnn>t<nn> <nn>_ s<nn><date>	Scanned 35mm or digital slides. t<nn> is township, r<nn> is range, s<nn> is section. <date> is year and month

B	Subfolder Name	File Name	Description
			(YYMM). Example: slides_mn013t34_r26_s150207.tif
Y	**land_site**	aboveground_storage_p_<stnnn>	County coverage of the location points of aboveground storage facilities. Any kind of storage or particular types of storage
		housing_p_<stnnn>	Location points for instances of housing developments and/or foreclosures, within a county
		lagoon_p_<stnnn>	Location points for lagoons and similar areas in a county
		livestock_facility_p_<stnnn>	Location points of feedlots, poultry facilities, etc. within a county
		stackyd_a_<stnnn>	Polygons of stackyards for hay/silage storage in a county
		storage_p_<stnnn>	Location points for grain bins and similar facilities in a county
		underground_storage_p_<stnnn>	County coverage of the location points of underground storage facilities
		well_p_<stnnn>	Point data for locating well heads within a county
Y	**land_use_land_cover**	lulc_a_<stnnn>	Polygon data of the USGS Land Use Land Cover
		nonveg_a_<stnnn>	1:24,000 USGS non-vegetative polygon data (sand area, beach, gravel beach, etc.)
		nlcd_<st>_utm<nn>	30 meter USGS/EPA National Land Cover Dataset raster data. The dataset is available in multiple UTM zones for states in more than one zone
		surfcvr_a_<stnnn>	1:24,000 USGS surface cover polygon data (woods, brush, orchard, etc.)
		File naming to be determined.	Vegetation distribution, etc.
Y	**land_use_land_cover\ fsa_compliance**	crl_a_<stnnn>_<yyyy>	Acreage reporting data created by FSA's Crop Reporting Tool (an R&D tool). Data is created locally for each farm, then merged into one county file. Is used in SC with CLU
		land_use_a_<stnnn>	Commodity (acreage) reporting data created by the FSA Land Use pilot application. Will be run in only three counties in 2002 using SQL Server. Up to ten years of data is kept in one file – not an annual file.
		land_use_d_<stnnn>	Commodity (acreage) reporting data

B	Subfolder Name	File Name	Description
			created by the FSA Land Use pilot application. Will be run in only three counties in 2002 using SQL Server. All polygon data is kept in one file – not an annual file
Y	**map_indexes**	napp_p_<stnnn>	National Aerial Photography Program (NAPP) point data
		quads12k_a_<stnnn>	1:12,000 quarter quad polygon data
		quads20k_a_<stnnn>	1:20,000 7.5x7.5 quad polygons
		quads24k_a_<stnnn>	1:24,000 7.5x7.5 quad polygons
		quads25k_a_<stnnn>	1:25,000 7.5x7.5 and 7.5x15 quad polygons
		quads63k_a_<stnnn>	1:63,360 15x15 quad polygons
Y	**measurement_services**	meas_service_a_ <stnnn>_<yyyy>	Yearly file for all area measurement services
N	**ortho_imagery**	ortho_e<x-x>_<stnnn>	APFO MrSID county ortho mosaic of enhanced MDOQ. <x-x> is number-total titles in county mosaic
		ortho<x-x> _<stnnn>	NCGC or NRCS county ortho mosaic of DOQQ. <x-x> is number-total titles in county mosaic
		ortho_<st><nnnnnn>	NCGC MrSID field office service area (as defined in Office Information Profile - OIP) ortho mosaic
		ortho_<st><nnnnnn>	NCGC ER Mapper field office service area OIP ortho mosaic. File extension of ER Mapper image is .ecw
		<a><nnnnnnn>_<qqq>_ <yyyymmdd>	USGS DOQQ –Raster format (.bil, .bsq, .bip). <a> is leading character either ‘o’ for black and white or ‘c’ for color. <nnnnnnn>, two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle number in the one degree block. <qqq> is quarter area.. <yyyymmdd> is image date.
		<a><nnnnnnn>_ <yyyymmdd>	APFO DOQ .tif image. <a><nnnnnnn> is leading character, two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle number in the one degree block. <yyyymmdd> date is optional. Leading character <a> can be: m – all DOQQs present and reside in native UTM zone x – there is a missing DOQQ in the DOQ

B	Subfolder Name	File Name	Description
			z – re-projected DOQ into dominant county UTM zone
Y	**project_data**		Subfolders for agency-specific data that does not fit under the major geodata theme subfolders. Subfolders for each agency or organization are created as needed.
	project_data\fsa	File naming to be determined	Place within the county where the related customer (as recorded in attribute data in the GIS application) is participating in a particular program. <t> is feature type
	project_data\nrcs	File naming to be determined	Place within the county where the related customer (as recorded in attribute data in the GIS application) is participating in a particular program. <t> is feature type
	project_data\rd	chattel_p_ <stnnn>	Known location points for customer-owned, moveable property, in a county. Multiple assets may be linked to a point
		chattel_y_<stnnn> <sequence_number>	Photographs associated with the customer chattel points file. If multiple photos, they can be distinguished with a sequence number, or other identifying information.
		File naming to be determined	Point locations within the county where the related customer (as recorded in attribute data in the GIS application) is participating in a particular program
	project_data\rcd	File naming to be determined	Resource Conservation District
	project_data\swcd	File naming to be determined	Soil and Water Conservation District
Y	**public_utilities**	File naming to be determined.	
N	**soils**	crpdata_d_<stssaid>	NOT A MAP-Excel spreadsheet with 1990 frozen soils data used for Conservation Reserve Program (CRP) eligibility determinations. <stssaid> State Soil Survey Area ID number (e.g., crpdata_d_ca048.xls)
		mlra_a_us	Full US Polygon data of Major Land Resource Areas (MLRA) Reselected to SC Area
		soil_d_ <stssaid>	NOT A MAP-Access database of soil survey attribute data in the current SSURGO structure format.
		soil_a_<stssaid>	SSURGO Soils Polygon data
		soil_l_<stssaid>	Line data of the soils special features

B	Subfolder Name	File Name	Description
		soil_p_<stssaid>	Point data of the soils special features
		soilmosaic_d_<nnnnnn>	Merged SSURGO attribute data for more than one soil survey area to support service center area of service. <nnnnnn > is the OIP office ID not OIP site ID
		soilmosaic_a_<nnnnnn>	Merged SSURGO soil polygon data for more than one soil survey area to support service center area of service. <nnnnnn > is the OIP office ID not OIP site ID
		soilmosaic_l_<nnnnnn>	Merged SSURGO soil special line features for more than one soil survey area to support service center area of service. <nnnnnn > is the OIP office ID not OIP site ID
		soilmosaic_p_<nnnnnn>	Merged SSURGO soil special point features for more than one soil survey area to support service center area of service. <nnnnnn > is the OIP office ID not OIP site ID
		ssa_a_<stssaid>	Polygon data limit of Soil Survey Area (SSA)
N	**topographic_images**	drg_<stnnn>	County mosaic MrSID of 1:20K, 1:24K, 1:25K Digital Raster Graphs without map collar
		drg_<st><nnnnnn>	OIP area mosaic MrSID Digital Raster Graphs without map collar
		<usgs standard>_<yyyy>	Enhanced DRG image with map collar removed. Image date <yyyy> is optional for more than one set.
N	**transportation**	misctrans24k_l_<stnnn>	1:24,000 USGS line data (power transmission lines, substation, pipelines, etc.)
		misctrans100k_l_<stnnn>	1:100,000 Census TIGER line data for pipelines, power transmission lines, etc.
		railroads24k_l_<stnnn>	1:24,000 USGS line data-railroad layer
		railroads100k_l_<stnnn>	1:100,000 Census TIGER line data for railroad layer
		roads24k_l_<stnnn>	1:24,000 USGS line data-Roads layer
		roads100k_l_<stnnn>	1:100,000 Census TIGER line data for roads layer
Y	**wetlands**	nwi_a_<stnnn>	Polygon data of the National Wetland Inventory (NWI) Fish and Wildlife Service (FWS)
		nwilfetr_l_<stnnn>	Linear Features line data of the NWI
		nwi_l_<stnnn>	Outlines of the NWI polygon data for

B	Subfolder Name	File Name	Description
			cartographic display
		nwi_p_<stnnn>	Point data of the NW I
		wetland_l_<stnnn>	Boundaries of natural or constructed wetlands, by county.
Y	**wildlife**	File naming to be determined.	No files delivered to date.
Y	**zoning**	File naming to be determined.	No files delivered to date.

As needed, the following subfolders can be added as an additional layer of subfolders under each of the major *geodata* theme folders:

Y	**gps_data**	<subject>_xd_<stnnn> <date>	A file of GPS points downloaded from a GPS instrument. The data in this file is kept in its original GPS-specific format. The subject describes what the data represents, i.e. “Grain Bins”. If this GPS data is imported into a GIS system, the resulting file would have a different feature type, i.e. ‘p’ if it is saved as a point data GIS file.
Y	**photographs**	<identifier>_y_<date> <sequence number>	<Identifier> = the basic content of the photo, i.e. “Grain Bins on Smith Farm”. Date indicates when the photo was taken. If multiple pictures were taken, a sequence number (i.e. 1, 2, 3) can be added to give each photo a unique name.

Table Notations: The following notations apply to the file naming conventions used in Appendix A:

- **< >** indicates a substitution notation
- **( )** indicates a choice list notation
- | indicates a choice of options and reads as "or"
- <**date**> is the landsat acquisition date
- **<mmm>** is the three-letter abbreviation for the applicable month (e.g., precip<mmm>_a_<st>, precipjun_a_co is the file name for Colorado June precipitation)
- **<nnn>** is the congress number
- **<stnnn>** is the 2-character state postal abbreviation and 3-digit County FIPS codes (e.g., drg_r_<mdnnn>, drg_s_md047 is the file name for Worcester County, Maryland DRG)
- <**nnnnnn**> is the Office Information Profile number

- <**nn**> is the UTM Zone number 01-60
- <**qq**> identifies the Digital Ortho Quarter Quad (nw, ne, sw, se, xx) within the full quad.
- **<nnnnn>** is a 2-digit latitude and 3 digit longitude for a one degree block
- <**ppprrr**> is landsat path and row.
- **<name_of_quad**> is the USGS quadrangle name in lower case with "_" for embedded spaces
- **<st>** is the two character state postal abbreviation (e.g., precip_a_<st>; precip_a_co is the filename for Colorado annual precipitation)
- **<stssaid>** is the state soil survey area ID (e.g., soils_l_<stssaid>; soils_l_24047 is the filename for Worcester County, Maryland Soil Survey Geographic Database (SSURGO) Lines)
- <**xxxxxxxx**> is the 8-digit Hydrologic Unit Code
- **<x-x>** is number - total tiles in an APFO or ERMapper county ortho mosaic. Tiles are numbered west to east and north to south. These are county subsets due to maximum file sizes (2GB for Solaris 2.5), maximum space on CD media (650MB), and Maximum compression ratio: Lizardtech recommends a maximum of 12:1 for B/W and 20:1 for color.
- **<###k>** is quadrangle scale. 12k, 20k, 24k, 25k, 63k, 100k, 250k
- **<yyyy>** is the calendar year
- <**yyyymmdd**> is the photography date for the quad. Optional field when information is not available. Use at least year <**yyyy**> when available.
- **us** indicates a dataset covering the entire United States, its protectorates and territories.
- **us48** indicates the conterminous or contiguous United States
- **<usgs standard>** is the standard naming convention used by the United States Geological Survey (USGS

For the Mosaicked Digital Ortho Quadrangles (MDOQ) imagery

- **<a>** is a substitution for the leading character that describes the Mosaicked Digital Ortho Quadrangles (MDOQ) imagery
- **m** indicates DOQQs (Digitial Ortho Quarter Quadrangles) are present and reside in native Universal Transverse Mercator (UTM) zone
- **x** indicates there is a missing DOQQ in the DOQ
- **z** represents re-projected Digital Ortho Quadrangle (DOQ) into dominant county UTM zone

The feature-type portion of the name is one of the following:

a - area	p - point
d - database/spreadsheet	t - table
e - enhanced	x - GPS points (without differential resolution, or of unknown resolution)
i - index or image catalog	xd - GPS points (if differential resolution was used)
l - line	y - photograph (from digital camera or scanned photo)
m - metadata	

A.1 – Merging Datasets into Area-wide Data Layers

Merged datasets created to provide a Service Center area-wide data layer are named using the data theme file standard name preceded with 'mosaic_' and ending with the OIP office id.

Example: If the NRCS Fort Collins, CO office (OIP Office No. 60548) merged two soil surveys (Larimer County Area Soil Survey (CO644) and Weld County Area Soil Survey (CO617)), the resulting file would be named – soil_mosaic_a_60548, and soil_mosaic_d_60548

The OIP office id can be found at http://offices.usda.gov, navigating to the state and county and selecting the menu item "*complete office listing*". Do not use the site ID. The site ID will change with a change in physical location of the office. Use the Office ID, which remains the same as long as the agency office has a presence in the county.

Appendix B. – DEFINITIONS OF METADATA ELEMENTS

Listed below are the core minimum metadata elements that can be recorded for each geospatial data file. A more detailed explanation of metadata can be found in the ***Standard for Geospatial Dataset Metadata*.** See section 3.1 for details on locating this document. In the future refer to this document on the website for the most current metadata standard.

Example: Metadata Minimum Elements for SSURGO in Polk County, Iowa

Originator: U.S. Department of Agriculture, Natural Resources Conservation Service

Publication_Date: 19980922

Title: Soil Survey Geographic (SSURGO) database for Polk County, Iowa

Purpose: SSURGO depicts information about the kinds and distribution of soils on the landscape. The soil map and data used in the SSURGO product were prepared by soil scientists as part of the National Cooperative Soil Survey.

Progress: Complete

Time Period of Content: 1998

Source_Scale_Denominator: 12000

Map_Projection: UTM_Zone_Number: 15

Contact_Organization: U.S. Department of Agriculture,
Natural Resources Conservation Service

Address: 210 Walnut Street, Suite 693
City: Des Moines
State_or_Province: Iowa
Postal_Code: 50309-2180

West_Bounding_Coordinate: -93.8750
East_Bounding_Coordinate: -93.3125
North_Bounding_Coordinate: 41.8750
South_Bounding_Coordinate: 41.4375

Description of the Core Metadata Elements for Geospatial Datasets

Minimum Metadata for Geospatial Datasets

Originator	**Contact_Organization** **(or Contact_Person)**
Publication_Date	**Address**
Title	**City**
Purpose	**State**
Progress	**Postal_Code**
Time_Period_of_Content	**West_Bounding_Coordinate**
Source_Scale_Denominator	**East_Bounding_Coordinate**
Map_Projection	**North_Bounding_Coordinate**
	South_Bounding_Coordinate

Metadata Element Name	Definition	Domain value/example
Originator	The name of an organization or individual that developed the data set.	Textual entry, should include the names of editors or compliers if information is available. Examples include: "USDA NRCS", "USDA APFO", USDA FS" or "John Smith NCRS"
Publication_Date	The date when the data set is published or otherwise made available for release.	For example June, 1999.
Title	The name by which the data set is known.	For example, "Common Land Unit of Taylor, Texas".
Purpose	A summary of the intentions under which the data set was developed.	Example: "This data set depicts information about features on or near the surface of the Earth depicting information about the distribution of the theme across the landscape. It can be used for general planning purposes in GIS analysis."
Progress	The current status of the data set.	"Complete", "In Work", "Planned"
Time_Period_of_Content	The year (and optionally month, or month and day).	The date should conform to the following format: YYYY for year only, YYYYMMDD if month and day information is available. An example for June 10, 1999 is 19990610 or simply 1999 if only year information is available.

Metadata Element Name	Definition	Domain value/example
Source_Scale_Denominator	The denominator of the representative fraction on a map.	For example, on a 1:24,000-scale map, the source scale denominator is 24000.
Map_Projection	A value representing a UTM zone number or a State Plane zone. This metadata element is used in the simplified core metadata described in section 5 of this document. A full set of metadata would, instead, record the values in the separate data elements listed below.	UTM or State Plane zone number value. Usage is according to the predominate usage in the particular state. UTM Zones: Values for the northern hemisphere fall within 1 <= UTM zone <= 60. Values for the southern hemisphere fall within -60 <= UTM zone <= -1. SPCS Zones: Use the four-digit numeric codes for the SPCS zone based on the North American Datum (NAD) of 1927 or NAD 1983 depending on applicability.
Contact_Person	The name of the individual to whom the contact type applies. In many cases this may be the data steward.	For example: “John Smith”
Contact_Organization	The name of the organization to which the contact applies.	Examples include: “USDA NRCS”, “USDA APFO”, USDA FS”
Address	An address line for the address.	For example: 100 S. Main St.
City	The city of the address	For example: Kansas City
State	The state or province of the address.	For example: MO
Postal_Code	The ZIP or other postal code of the address.	For example: 20002
West_Bounding_Coordinate	Western-most coordinate of the limit of coverage expressed in longitude (decimal degrees).	-180.0 <= West Bounding Coordinate <= 180.0
East_Bounding_Coordinate	Eastern-most coordinate of the limit of coverage expressed in longitude (decimal degrees).	-180.0 <= East Bounding Coordinate <= 180.0
North_Bounding_Coordinate	Northern-most coordinate of the limit of coverage expressed latitude (decimal degrees).	–90.0 <= North Bounding Coordinate <= 90.0; North Bounding Coordinate >= South Bounding Coordinate.
South_Bounding_Coordinate	Southern-most coordinate of the limit of coverage expressed in latitude (decimal degrees).	-90.0 <= South Bounding Coordinate <= 90.0; South Bounding Coordinate <= North Bounding Coordinate

Appendix C. – ADMINISTRATION OF THE GEODATA FOLDER

There will be specific Geodata Global Groups interacting with the geodata folders on the Service Center Network Servers. Each group will have a specific set of permissions for reading and/or writing files, and creating/deleting specific subfolders. The level of access assigned to some groups may vary from subfolder to subfolder (e.g., the FSA Staff Group may have read access to one subfolder and read/write access to a different subfolder). Groups will, in many cases, have members from multiple agencies. State IT staffs working with the State and Local Geodata Administrators assign group membership.

The Geospatial Data Provisioning Team has identified requirements for using both existing global groups for permissions as well as requirements to create additional global groups. As of June, 2002, the CCE Enterprise Team has declined the Geospatial Data Provisioning Team's requests that new global groups be created in Active Directory to support management of geospatial data. It is expected that the new geodata global groups, which are described in the following section, will be approved at a later date when adding additional groups is less disruptive to CCE operations. The existing global groups, which are also described in this appendix, can be used to establish permissions on an interim basis, if desired.

The following series of new geodata global groups will be created at a later date in active directory.

1. State Geodata Administrator

   Will have access to all geospatial data for the state, on the network servers at the Service Center and State office and permissions to read, write, change, delete folders and subfolders, or individual files within them either by making global changes or changes to individual elements within them. SGDA can create folders & subfolders as necessary.

2. Local Geodata Administrator

   Will have access to all the geospatial data at the Service Center and permissions to read, write, change, delete folders and subfolders, or individual files within them either by making global changes or changes to individual elements within them. LGDA can create folders & subfolders as necessary within that Service Center. This domain group has been established; however, local geodata administrators may not be assigned to this group until training has been provided by the state office staffs on geodata data management and administration. In some cases the State Office Staff may assign members to this group if they determine that the individuals have the proper experience. Each office will have at least one administrator and a back-up person or persons in this group.

3. FSA – Local Geodata Editors

   Will have access to all FSA specific geospatial data at the Service Center and permissions to read, write, change, delete and replicate all FSA administered folders except restricted folders. The group may, but is not required to, include the same employees as those in groups 4 and 5. Specifically the group should include employees responsible for entering Measurement Services into the GIS system; working with Farm Loan easements (FSA Farm Loan Manager & backup), compliance imagery or CRP; collecting or maintaining data for files

listed under the land site subfolder; and anyone who will be entering data on disaster events into GIS system.

4. FSA – Local CLU Data Editors

Will have access to geospatial and customer/business CLU data at the Service Center with permissions to read, write, change, delete and replicate CLU specific data files. The persons assigned to this group should be the employees responsible for maintaining the CLU and the CED. At a minimum, at least the CLU Data Manager and one backup should be assigned to the group. See 8-CM, paragraph 33 for more information on CLU Service Center Manager.

5. FSA- Disaster Events/FSA Facilities Access and Edit

This highly restricted FSA group will have access to view and edit point locations data relating to Fertilizer Facilities and to Food, Feed and Seed Facilities. The persons assigned to this group should be the employees responsible for maintaining the existing paper listings in Section 2 and Section 3 of 1-DP. Once position data is collected for Fertilizer Facilities and Food, Feed and Seed Facilities, the group would be expected to maintain the data.

The following geodata global groups can be established using existing general agency and service center global groups. If desired, these global groups can also be used to establish interim permissions for subfolders that will eventually be managed using the requested new, global groups.

6. NRCS Local Geodata Editors

Will have read and write access to all NRCS specific geospatial data at the Service Center and permissions to read all geodata folders except restricted folders.

The existing NRCS staff global group (gg-sitename-nrcs) will be used to establish this NRCS Local Geodata Editors group.

7. RD Local Geodata Editors

Will have read and write access to all identified RD specific geospatial data at the Service Center and permissions to read all folders except restricted folders.

The existing RD staff global group (gg-sitename-rd) will be used to establish this RD Local Geodata Editors group.

8. SWCD Geodata Editors

Will have read and write access to identified Soil and Water Conservation District (CD) specific geospatial data at the Service Center and permissions to read all folders except restricted folders.

The existing SWCD staff global group (gg-sitename-swcd) will be used to establish this SWCD Local Geodata Editors group.

9. Service Center Users

Will have read access to all non-restricted folders.

The existing service center staff global group (gg-sitename-users) will be used to establish this service center users group.

10. FSA Staff Users Group

Will have FSA agency only read access to specific folders (e.g., measurement services) and sub-folders that are restricted to access by other agencies. Will have read and write access to project files_fsa subfolders.

The existing FSA staff global group (gg-sitename-fsa) will be used to set up FSA only access to specific folders.

Permissions Matrix:

In the following chart, the groups having access to each subfolder are listed. For directories having a 'Y' (yes) under Daily and Weekly Backups, changed files will be updated on a daily basis with a complete backup of all files weekly. An 'N' (no) indicates that files in that folder will not be backed up either daily or weekly. When there is variation from subfolder to subfolder in the access levels that are associated with a group, the level of access (i.e., R for Read, R/W for Read/Write, etc.) is included in the matrix. In some cases (e.g., air_quality), the need for a subfolder has been identified but the specific names for data files that would be placed in that subfolder have not yet been identified.

Subfolder Name	Files in the Subfolder	Groups with access to the folder	Daily and Weekly Backups
F:\geodata		1,2	
air_quality	File naming to be determined	1,2,9	Y
cadastral	ntlparks, plss	1,2,9	N
census	tiger	1,2,9	N
climate\precipitation	precip	1,2,9	N
climate\temperature	To	1,2,9	N
common_land_unit	dlu (district land unit)	1,2,9,6	Y
common_land_unit\fsa_clu	clu, crp, wet	1,2,9,4	Y
conservation_practices	File naming to be determined	1,2,9,6	Y
cultural_resources	File naming to be determined Note: Access restricted to Geodata administrators and Conservation District Geodata editors.	1,2,8	Y
disaster_events	disaster_type	1,2,9,3,6,7	Y

Subfolder Name	Files in the Subfolder	Groups with access to the folder	Daily and Weekly Backups
disaster_events\fsa_facilities	ffl, ffsfl	5	Y
ecological	File naming to be determined	1,2,9	Y
elevation	contour, ngs, ned, nez, nedshd, nezshd, nedmeta, nezmeta, dem	1,2,9	N
endangered_habitat	File naming to be determined	1,2,9	Y
environmental_easements	wrp	1,2,9,6	Y
environmental_easements_fsa	flpce, flpct, dfn	1,2,9,3	Y
geology	File naming to be determined	1,2,9	Y
geographic_names	gnis	1,2,9	N
government_units	boundary, congdist, cities, cnty, manfetr, rcd, state, swcd, urban, zip	1,2,9	N
hazard_site	File naming to be determined	1,2,9	Y
hydrography	damsites, femaq3, hydro, ntlhydro, ssara, watbod	1,2,9	N
hydrologic_units	huc	1,2,9	Y
imagery	landsat	1,2,9,3,4,6	N
imagery_compliance_fsa	comp, slides	1,2,9,3	N
land_site	aboveground_storage, housing, lagoon, livestock_facility, stackyd, storage, underground_storage, well	1,2,9,3,6,7,8	Y
land_use_land_cover	lulc, nonveg, nlcd, surfcvr, vegetation	1,2,9	Y
land_use_land_cover_compliance_fsa	crl, land_use	1,2,9,3	Y
map_indexes	napp, quads	1,2,9	Y
measurement_services	meas_service	3, 10®	Y
ortho_imagery	mosaic, ortho, doqq, do	1,2,9	N
project_data			Y
project_data\fsa	File naming to be determined	1,2,9, 10(R/W)	Y
project_data\nrcs	File naming to be determined	1,2,9,6	Y
project_data\rd	chattel	1,2,9,7	Y
project_data\rcd	File naming to be determined	1,2,9	Y
project_data\swcd	File naming to be determined	1,2,9	Y
public_utilities	File naming to be determined	1,2,9	Y
soils	crpdata, mlra, soil, soilmosaic, ssa	1,2,9	N
topographic_images	drg	1,2,9	N

Subfolder Name	Files in the Subfolder	Groups with access to the folder	Daily and Weekly Backups
transportation	misctrans, railroads, roads, utils	1,2,9	Y
wetlands	nwi, nwilfetr, wetland	1,2,9	Y
wildlife	File naming to be determined	1,2,9	Y
zoning	File naming to be determined	1,2,9	Y

Appendix D. – PROCEDURES FOR MIGRATING GEOSPATIAL DATA TO NETWORK SERVERS

D.1 Introduction to Procedures for Migration of Geospatial Data to Network Servers

These procedures apply to service centers that:

1) already have a network server,
2) already have geospatial data, and
3) want to migrate their geospatial data to the network server after promotions of network servers are completed (i.e., after July 1, 2002).

There are two alternative methods for migrating geospatial data to the network servers. These alternative methods are:

a. Tool Assisted Procedures, and
b. Manual Procedures

The tool assisted procedures enable a simpler and faster migration of geospatial data to the network servers. The tool searches workstations for all geospatial data files, establishes new subfolders and supports migration of the existing data files to the new standardized subfolder and data file configuration and reestablishes ArcView project links. These steps can also be accomplished using manual procedures but with greater difficulty and more time.

This appendix identifies the people who are responsible for various facets of geospatial data migration, common preparation procedures for geospatial data migration and then the manual procedures for data migration.

Scripts are under development to assign groups and permissions to these subfolders. New geospatial data related global groups will also not be set up and implemented in Active Directory at a later date. Existing global groups can be used to establish interim permissions.

The State Geodata Administrator has responsibility for initiating, scheduling, coordinating and conducting migrations of geospatial data from workstations to the network server. These migrations must comply with standards for folder and file names and permissions. The State Geodata Administrator will communicate with the service centers to schedule the geodata migrations and to make sure that service centers understand the advance preparation steps that are identified below in D.2 - Advance Preparation at Service Center with Geospatial Data by GIS Users/Computer Operators.

D.2 Advance Preparation Procedures

The advance preparation procedures that are discussed in this section apply regardless of which geospatial data migration method is used (i.e., tool assisted or manual).

D.3 Advance Preparation at Service Centers with GeoSpatial Data by GIS Users/Computer Operators

The State Geodata Administrator will coordinate with the local geodata administrator or IT staff to communicate instructions for this advance preparation step to the GIS Users in the service center. The advance preparation task involves backup of geospatial data as well as identification of geospatial data to be migrated and deletion of duplicate data.

- Backup all geospatial data and project files on your desktop/laptop computer to tape, CD-Rom, personal directory on a server, or diskette. Staffs who use geospatial data will perform this step; in some states supplemental instructions may be provided by the State IT staff and/or State Geodata Administrators.
- If you (i.e., geodata users/computer operators) have duplicate datasets on your computer, or if the same dataset is duplicated on multiple desktop/laptop machines, determine which dataset is the complete and correct source of data and then delete the extra copies of the data. Staffs who use geospatial data will perform this step.

D.4 Advance Preparation at State Office by State IT Staff or Geodata Administrator

The State Geodata Administrator will have primary responsibility for this task but may complete it in cooperation with state IT staff. The key steps involved in this advance preparation task are to assess the geospatial data that are available at the service center and to supplement these data with other data that may be available from state archives and other sources (e.g., ftp download from NCGC). It is important to note that there is not a need at this point to perform an exhaustive search for additional geospatial data. If additional geospatial data are readily available, then it is useful to load these data on the network server while performing the geospatial data migration. The highest priority geospatial data sets are:

1st Priority for Data Themes:

a. Digital Orthophotography
b. Soils
c. Common Land Unit (CLU)
d. Topographic images
e. Public Land Survey (PLSS)
f. Flood Zones - FEMA
g. Demographics – Census (blocks/tracks) (roads/streams)
h. Administrative Boundaries.

2nd Priority for Data Themes

i. TIGER (roads/streams)
j. Hydrology
k. Hydrologic Units
l. Elevation
m. Mean Annual Precipitation
n. Wetlands

D.5 Assess Geospatial Data Resources and Build Additional Data Sets before Going to Site:

- Review Geospatial Data already available and installed at the Service Center. If additional geospatial data are also available from state, data center or other sources, obtain these data sets, re-project to UTM zone NAD83 (if necessary) and name according to the standard name conventions. Note: UTM zone NAD83 refers to the Universal Transverse Mercator Projection with the 1983 North American Datum. The specific zone will vary across the country.
- Place data sets on a CD under the standard folder structure for easier install. Take uncompressed ortho CD's, and CD with other geospatial data. Be sure to take a CD with other data such as avl files, extensions, and other setup items.

D.6 Field Test Experience

Based on field test experience, it is recommended that four to eight hours per typical service center be used as an estimate for time to migrate geospatial data using the tool assisted approach. Eight to sixteen hours should be used as an estimate to complete migration using manual procedures.

The following comments regarding manual geospatial data migration tasks have been provided for your use:

I went to a field service center with a new server and actually worked through the document and did all conversion work manually with no automated tools. This FSC had only one GIS user with data on their desktop (NRCS-DC).
Actual time spent on GIS data promotion/renaming, reconfiguring projects, deleting old data, showing the user what happened to the data, and etc took about 2 hours. For each additional casual user I would add 30 minutes for re-configuring their projects, data cleanup and etc. For each serious user (lots of projects and data to go through) I would add about 1 hour. So a typical FCS with 10 agency employees would be a good 4-5 hour job if all of them were using GIS with data on their desktop. This does not count any time for basic ArcView/GIS training issues that always come up while you are there. So driving time and all things considered - about a day per FCS is a good estimation for migrating GIS data to the servers manually. My guess on having automated tools would cut the actual time spent in the FSC in half.

An additional comment regarding manual migration of geospatial data is as follows:

"Here in MN we just finished doing a high end migration to the server yesterday. It took a little over a day for the IT staff to get through it. They know it will get faster as they get more familiar with the process."

An early tester of the tool assisted procedures had the following to report:

"I have completed testing of the new tool. In summary - it works great! Thanks again for the opportunity to test the tool, and for developing such a time-saving tool."

D.7 Manual Processes for Consolidating and Migrating GeoSpatial Data to the Network Servers

D.8 Overview of Manual Processes for Geospatial Data Consolidation and Migration

The purpose of this section is to provide an overview of processes for manually consolidating and migrating geospatial data from workstations to network servers in Service Centers. The manual procedures are more labor intensive and less user friendly than the tool assisted procedures which were previously described. Based on pilot testing of these procedures, the geospatial data for a typical size service center can be consolidated and migrated in approximately one day. The manual processes section provides standard, tested methods for performing geospatial data consolidation and migration to minimize the need for various staff to "re-engineer the wheel" while performing these tasks.

As mentioned previously, the geospatial data consolidation and migration process should be initiated by and coordinated by the state geodata administrators. The state geodata administrators will likely use state IT staff and other resources to help complete this process.

D.9 Work on Site at Service Centers with Existing GeoSpatial Data to Migrate Manually to Network Servers

The specific manual procedures to follow will vary depending on where the geospatial data starts from (e.g., workstation on the domain, workstation off of the domain, toolkit folders, CDs, etc.). These steps will be conducted by the State Geodata Administrator and/or State IT staff working in conjunction with the service center GIS Users/Computer Operators.

1. Locate where the geodata or Service Center Themes data resides in the Field Service Center.

2. The State Geodata Administrator will notify all personnel that they are going to migrate the geospatial data to the server. If the geospatial data preparation tasks, previously discussed in this appendix, have not yet been completed, the State Geodata Administrator will provide, if necessary, any documentation or instructions that the GIS Users will need regarding tasks to be performed on their workstation.

3. These tasks will be conducted on the workstation or server, that contains the geospatial data to be migrated.

4. An administrator or equivalent will rename the existing files and folders that reside on the workstation.
5. An administrator or equivalent will rename the GIS Users existing files according to the file naming standards described in this document. (Based upon the file naming standard in Appendix A of the Managing Geospatial Datasets document, page 12) If these files exist on a CD, then copy them to a hard drive with enough space and modify the file name per the documentation. Once you have copied them to the local system and modified the file names, you will now place them into the folder structure.

Once you have renamed the files with the correct naming standard, then rename (Based upon the folder naming standard in Appendix A of the Managing Geospatial Datasets document, page 12) the existing folders on your desktop computer according to the folder structure described in this document. State IT staff or geodata administrators will perform this step in conjunction with computer operators in the service centers. If this copied from CD, you may have to manually create the folder structure to place the files.

List of Subfolders under the *geodata* Folder

air_quality	hydrologic_units	topographic_images
cadastral	imagery	transportationcensus
climate\precipitation	**imagery_compliance_fsa**	wetlands
common_land_unit	**land_site**	**wildlife**
common_land_unit\fsa_clu	land_use_land_cover	**zoning**
conservation_practices	**land_use_land_cover_compliance_fsa**	
cultural_resources	map_indexes	
disaster_events	**measurement_services**	
disaster_events\fsa_facilities	ortho_imagery	
elevation	**project_data\fsa**	
endangered_habitat	**project_data\nrcs**	
environmental_easements	**project_data\rd**	
geology	**project_data\rcd**	
geographic_names		
hazard_site		
hydrography	**project_data\swcd**	
	public_utilities	
	soils	

6. As an administrative user ID with the correct rights to the server, map a drive to the server from the GIS user's workstation. The Geodata Administrator will map the drive by using any available drive letter above F: and not currently used to the \\servername\DATA share on the server. This is where the geodata folder resides on the system. It would make things more efficient if every workstation mapped the same drive letter on their workstation to the server.

7. Copy all geodata files from workstations to the network server. It may be easier to copy all files to the network server first and then move files to their proper folder. State IT staff or geodata administrators will perform this step in conjunction with computer operators in the service centers.

   ➲ *Administrators also need to validate if any data has been moved to the server already.*

8. Update (remap) ArcView project files (APR's) to reflect the correct path using the procedures described in D10 and D.11. State geodata administrators will perform this step in conjunction with computer operators in the service centers.

9. NRCS users may need to replace the existing Toolkit2_template.apr in each of the Customer Files with a revised version after migrating the geospatial data. The easiest way to accomplish the replacement of the project files would be the to edit the Toolkit2_template.apr file stored in C:\program files\usda\Toolkit Express NT\ArcView Extensions\Projects, then "push" the file to all customer folders using the CopyFile2CST script available at http://www.itc.nrcs.usda.gov/toolkit/MoreTools.htm , under the Missouri Customer Service Toolkit File Utilities section. Both the Copyfile2SCT utility and the instructions for using it are available on the website.

D.10 Manually Updating ArcView Project Files

There are two basic ways to edit ArcView project files. The option you choose will depend on how many changes need to be made to the project file.

D.11 Option 1 – Answer the "Where Is …?" Questions when Opening the ArcView Project

This option works well when a minimum number of changes need to be made in the project file. For example, if you used the Geodata Consolidation Utility to migrate the geospatial data, there should only be a few miscellaneous files that need to be updated manually.

To update projects using option 1: Start ArcView, and attempt to open the project you wish to edit. ArcView will display a dialog window prompting you to locate any of the files it can not find. (Note: the missing path\filename is displayed in the Title Bar of the dialog window following "Where is . . .?".)

At each prompt, on the right side of the dialog window, navigate to the **new directory** for the identified file. Locate the **new filename** on the left side of the dialog window. When you have located the file double click on the new filename. The dialog window will update, asking you for the next file it can not find. Continue to navigate to the new file locations and double click on the new filenames.

After all files have been located the dialog window will close and the View window will be displayed.
To save the new paths\filenames, from the File menu, select Save Project. Close ArcView. The project file has been updated and can be opened successfully in future ArcView sessions.

D.12 Option 2 – Use a Text Editor, such as MS Word, or Notepad to Edit a Project File

This option works well if you have several changes to make in a project file, and you don't want to answer the "Where Is . . . ?" questions as described in Option 1 for every file that has been renamed or moved. While this option is more convenient for making multiple changes, the process is more complicated, and there is more room for error when editing the project file. Before you begin editing a project file using a text editor it is highly recommended that you backup the project file before you begin.

To update a project file using option 2: Start MS Word, or Notepad. Open the project file (.apr file) you wish to edit.

From the **Edit** menu select **Replace**. In the Find What box type in the **original** path and filename that has been changed using the following as a guide:

[Drive][path][filename prefix] For example: C:/Service_Center_Themes/soils/soilsco025

Notice the file extension has been left off. This allows you to edit the primary file (.shp) and any associated files (.dbf, .shx, .avl, etc) by doing the Find/Replace one time. If the file extension is included you will need to do the find/replace for the primary file as well as all associated files.

Also notice the forward slash (/) that is used in ArcView project files is not the same as the backslash (**\)** that is normally used in describing directory paths. Be sure you use the forward slash when using the Find/Replace tools.

After typing in the new [drive/path/filename prefix] in the Replace With box type in the new [drive/path/filename], following the above example.

Click on **Replace All**.

Repeat this process for all files in the original project file that have been renamed\moved during the migration. This includes all geodata "themes" as well as any extra files that may have been included in the project. (Extra .dbf files that were used for joining or linking tables, SSURGO databases used with Soils Data Viewer, Image Catalogs that were rebuilt after the migration, etc.)

After you have completed the find\replace on all paths\filenames for the themes included in the project, you will need to do a find\replace on the **primary** files again, this time including the extension. It is not necessary to do this second Find\Replace on associated files. This will not effect whether or not the project will open correctly in ArcView, but it will make some "cosmetic" changes in the ArcView project. Without updating the primary files with their associated extension the original filenames will be displayed in both the View's table of contents and in the Legend Editor dialogs.

To make these cosmetic changes use the same Find\Replace process as described above, but this time in the Find What box type in the original primary filename in quotes. Do not include the drive or the path this time. For example: **"soilsco025.shp"**.

In the Replace With dialog type the **new** filename in quotes. For example: **"soils_a_co025.shp"**.

Repeat this process to update all themes that were included in the project.

When you are finished updating the project file, close the Find/Replace dialog window. From the **File** menu, choose **Save**. This will overwrite the original project file.

You may also use the File, Save As option to save the new project file. However if this option is used, you will need to save the file with a .txt extension, then after saving open Windows Explorer and change file extension from .txt to .apr.

After saving the new project file, close the text editor.

D.13 Rebuild ArcView Image Catalogs

After migrating the geospatial data it may be necessary to rebuild any image catalogs that were being used prior to the migration. Because image catalogs are .dbf files that contain the path and filenames of the image files they access, those .dbf files will no longer be valid after renaming files and moving them into the new geodata directories.

The following instructions will guide you through the process of rebuilding the image catalogs.

LOADING THE IMAGE CATALOG SCRIPT

To load the Image Catalog script in an ArcView Project:

Start ArcView, and open a **New Project**, with a N**ew View.**

From the **Project menu**, click on the **Scripts Icon**, then click **New**. This will bring up a dialog box named Script1.

From the button bar, click on the **Load Text File** button. 

In the load script dialog window, navigate to:

C:\esri\av_gis30\arcview\samples\scripts

From the file list on the left choose **imgcat.ave**, then click OK.

ArcView inserts the contents of the file at the insertion point in the Script1 Window.

Next, compile the Script by clicking on the **Compile Icon** in the Script GUI**.** 

To rename Script1:

From the **Script Menu, c**hoose **Properties, t**hen type in a descriptive name in the **name field**. (i.e. Image Catalog). Click **OK**. Close the Image Catalog dialog box.

To attach the script to a new button on ArcView's graphical user interface (GUI):

Make the View window active, then double click in a blank area of the View GUI (any space without a button on it). This will bring up a dialog box to customize the GUI.

In the Type field choose **View**, in the Category field choose **Buttons.**

A row of buttons will be displayed in the Customize dialog window. Click once in the row, at the point you want the new button to be located. Next, click on the **NEW** button. A new button will appear in the row.

In the lower half of the window is a list of options that can be set for the new button. **Double click** on the line labeled **"click".** Search for the Image Catalog script and click on it. Click **OK**.

Double click on the line labeled **"icon".** Choose an icon to use for the Image Catalog button (i.e. "**I**") Click **OK**.

Close the Customize Dialog Window.

Your new button is now part of the ArcView GUI. To save your work, save the project as **ImageCatalog.apr**. This will insure the button is available for building future image catalogs.

BUILDING IMAGE CATALOGS

To build an image catalog with ArcView:

Start ArcView. Open the ImageCatalog.apr created by following the instructions in the "Loading the Image Catalog Script" section above.

Using the Add Theme button, add the image files to be included in the image catalog to the View. ArcView will compile all images in the View into the image catalog, therefore **only** the images to be cataloged into a single file should be in the View when you execute the Image Catalog script.

Click on the Image Catalog Button. (Note: The images do not have to be displayed in the View when building the catalog.)

In the Save Image Catalog dialog box, navigate to the directory where you wish to store the new image catalog file, then type in a file name for the Image Catalog. Click **OK**.

Appendix E. – AUTOMATED PROCEDURES FOR MIGRATING GEOSPATIAL DATA TO NETWORK

E.1 TOOL ASSISTED PROCESSES FOR CONSOLIDATING AND MIGRATING GEOSPATIAL DATA TO THE NETWORK SERVERS

E.2 OVERVIEW OF THE GEODATA CONVERSION UTILITY

Many Service Centers have already been storing geospatial files on desktops, laptops, and/or network servers. The standards for folder and file naming have not been widely distributed, so folders and file names vary from office to office. Many offices are storing geospatial data on CD or other media due to a shortage of hard disk space on their computers.

The Geodata Conversion Utility was developed to assist Service Centers in establishing the standard "geodata" folder (directory) structure on their computers; to rename their geospatial files according to the geodata naming standard; to move the files into the proper geodata directories; and to migrate the geodata to the network server. The utility also aids in updating ArcView project files with the newly assigned paths and filenames.

The Geodata Conversion Utility consists of two "tools". The "Consolidate GeoSpatial Data" tool will assist the user in establishing the geodata folder structure on their local hard drive, renaming the existing geospatial files according to the naming standard, and moving the files to the proper geodata subfolder on their local hard drive. The tool will also update the paths and filenames in the ArcView project files.

The "Migrate GeoData Files" tool will assist the user in moving or copying geodata folders and files between computers. Normally this will be done after the consolidation process has been completed, either manually or using the Consolidate GeoSpatial Data tool. The receiving computer will likely be the shared CCE server (the F: drive), but could also be another desktop machine or laptop. If the geodata folder structure does not already exist (or is not complete) on the receiving machine, this tool will create it, (or add any missing subfolders).

The Geodata Conversion Utility may be used initially to clean-up existing geospatial data on the workstations, and to consolidate data from other media. It may also be used in the future to move data between computers, or to move data that is received from one of the national data centers in Ft. Worth or Salt Lake City, or from the state office.

While all of these functions could be accomplished with Windows Explorer and a Text Editor (for updating ArcView project files) the objective is to lead the user through the necessary steps, and automate as much work as possible to minimize user workload. The GeoData Conversion Utility was developed for the CCE 4 Windows NT environment.

System Administrator privileges are required, in order to install the utility on a CCE 4 computer. The installation will place the program and its associated files in C:\Program Files\usda\Geodata Conversion Utility.

E.3 "CONSOLIDATE GEOSPATIAL DATA" TOOL

- This tool will search the destination drive for an instance of the "geodata" folder. If present, it will insure all standard subfolders are included in the directory. If the geodata directory structure is not already present it will create it.

- If geospatial files exist on more than one drive, the user may run the consolidation tool on each of the drives, consolidating all of the files into a single geodata directory on their local hard drive.

- The tool will scan the selected directories for the following primary file extensions: .shp, .tif, .sid, .bil, .rs, .dem, .bsq, .bip, .ecw, and .e00. When a primary file extension is found, any associated files (.dbf, .shx, .avl, .tfw, .sdw, etc.) will automatically be selected, renamed, and migrated simultaneously with the primary file. The associated files are automatically selected by having the same prefix in the filename as the primary file, and being located in the same directory as the primary file.

- The user will be given the opportunity to rename each file, and to select the directory in which to place it. The objective is to have all geospatial files renamed and stored in their proper geodata subfolder on a local disk drive before migrating the data to the server.

- After the files are renamed and moved to the proper subfolder the ArcView project files can be selected for updating.

- After the consolidation is complete a report will be generated showing the before and after filenames and directory locations, as well as all .apr files that were modified.

E.4 MIGRATE GEODATA FILES" TOOL

- The Migrate Geodata Files tool allows the user to select a source computer and the drive where their geodata files are currently stored. They can then select the destination computer and the drive where they want the files to be moved to.

- If the receiving computer does not have a geodata directory, the folder will be created along with all of the standard subfolders. If a geodata directory already exists on the destination drive, the tool will insure all standard geodata subfolders are present, and any missing subfolders will be added.

- A dialog box will display all of the subfolders and files within the **geodata** directory on the selected Source drive. The user can select all or any of the files and subfolders they wish to migrate to the destination drive. The user will also choose whether they wish to move (files are deleted from the sending drive) or copy (files will exist on both the sending and receiving drive) the data to the source drive. This selection of move or copy allows the user to move some files while copying others.

- The possibility of creating duplicate files, when converging several workstations onto one computer drive, needs to be acknowledged. The user will be given the option to overwrite files, or ignore them during both the consolidation and migration phase. It is important that they identify which files need to be preserved before running the tools.

- After the geodata has been migrated, all ArcView project files (.apr files) will be edited to reflect the new filenames and directory locations. During migration the user may decide to keep copies of some files on their local hard drive, while removing other files. The removed files can then be accessed from the shared drive on the server. The ArcView projects will be edited accordingly.

- After the migration is complete a report will be generated showing the before and after filenames and directory locations, as well as all .apr files that were modified.

Both the consolidation and migration tools in the Geodata Conversion Utility will allow the user to stop and restart the application at the point where they left off, in cases where they don't have time to consolidate or migrate everything at once.

E.5 PREPARATION PROCEDURES FOR USING THE GEODATA CONVERSION UTILITY

Before running the GeoData Conversion Utility, follow the procedures outlined below to prepare the existing geospatial data for consolidation/migration. These procedures will need to be conducted on each workstation involved in the consolidation/migration of geospatial files.

Preparation Steps:

1. Become familiar with the file/folder structure on the computer. Locate all geospatial data files that are to be consolidated under the new geodata directory and migrated to the server. You will need this information when running the consolidation tool.

2. Identify the location of all existing ArcView project files. You may want to search the drives for *.apr files in Windows NT Explorer in order to locate all project files. **Once you run the conversion utility, any missed .apr files can not be updated automatically with the tool at a later time.** If you are not certain of the location of the project files, you may choose to search the entire drive(s) when running the utility so all directories will be searched during the "Update APR" phase of the utility.
3. Delete any duplicate files from the workstations to simplify the migration phase. Where duplicate files exist, identify which file is the one you wish to preserve during the migration. This is especially important if you will be migrating several workstations to a single server.
4. Be sure there is adequate space on the local hard drive to write files to the new geodata directory before using the consolidation tool. The space needed will depend on how much data you wish to consolidate, and if you will be adding data that is not currently on the local hard drive (i.e. data from CDs, or other media)

5. Check permissions on all geospatial files on the source drive to be sure the user has permission to rename and delete the existing geospatial files.

Check the file properties to be sure they are not Read Only files. If the files are Read Only they will be **copied** to the new geodata directory, but will not be removed from their original location (i.e. Service_Center_Themes).

If ArcView project files are Read Only they **can not** be edited to show the new path/filenames during the consolidation/migration.

The following DOS command will remove the Read Only attribute from all files in a singe directory:

attrib –r [[drive][Path]*.*] /s

For example: C:> attrib –r C:\Service_Center_Themes*.* /s

6. Insure the person running the migration tool has write permissions on the F:\geodata directory on the server. They will need write permissions in order to migrate the data from the workstation(s) to the server.

7. **Back up all existing geospatial data and ArcView project files before running the utility!**

After following these procedures, you may install and run the Geodata Conversion Utility as described in the following User's Guide.

GEODATA CONVERSION UTILITY USER'S GUIDE

E.6 PREREQUISITES FOR INSTALLING THE GEODATA CONVERSION UTILITY:

You must have system administrator privileges in order to install the application.

The Geodata Conversion Utility has been developed and fully tested on the CCE 4 Windows NT configuration. CCE 3 computers will have to be upgraded to CCE 4 before installing the application. The CCE 4 upgrade may be obtained for download using the Toolkit 3.0 installation package available at:

http://www.itc.nrcs.usda.gov/toolkit/Toolkit_30

All FY 2001 Dell Optiplex GX240, Precision 330, and Latitude C600 computers must have the Microsoft Data Access Components 2.5 patch loaded. The MDAC 2.5 Service Pack 2 is available at:

http://www.itc.nrcs.usda.gov/toolkit/IT_Updates.htm

The H: drive must be configured on the installing account on all CCE computers.

E.7 INSTALLING ON NON-CCE COMPUTERS:

The application may be installed on non-CCE computers running Windows XP, NT, or 2000. All Windows operating systems must have MDAC version 2.6 installed. A configuration file to upgrade to the MDAC 2.6 is posted for download with the Geodata Conversion Utility.

Windows 2000 also requires Service Pack 2. Service Pack 2 for Windows 2000 may be downloaded at:

http://www.microsoft.com/windows2000/downloads/servicepacks/sp2/

It is important to note that this application was developed for CCE 4 operating systems. While it may be installed on other Windows operating systems, the functionality has not been extensively tested. Use caution when running the application on non-CCE computers.

E.8 INSTALLATION PROCEDURES:

The Geodata Conversion Utility is available for download from the following websites:
http://www.itc.nrcs.usda.gov/toolkit/IT_Updates.htm
http://century.itc.nrcs.usda.gov/cce-states/

To install the application: Download the GeoDataSetup.exe file, saving it to your local hard drive. After the download is complete close all open applications. Click on the Start button, then click on Run. Browse to the location where GeoDataSetup.exe was saved and double click on it. Click OK. The install wizard will open and begin the installation process. Follow the prompts to complete the installation.

During installation, the program files will be installed in the C:\Program Files\usda\Geodata Conversion Utility directory and your computer will be upgraded with components necessary for the correct operation of the Geodata Conversion Utility. A shortcut icon will be added to the desktop for easy access to the application.

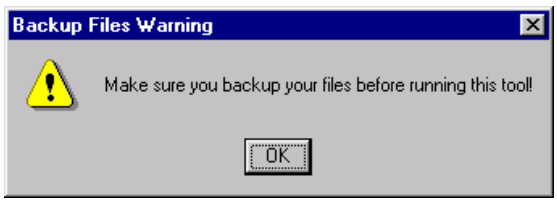
The Geodata Conversion Utility can be uninstalled using the Add/Remove Programs applet found in the Control Panel.

E.9 USING THE GEODATA CONVERSION UTILITY:

Before running the Geodata Conversion Utility read the Overview of the Geodata Conversion Utility in Appendix E to familiarize yourself with the tool's functionality. Also, follow the Preparation Procedures for the Geodata Conversion Utility in Appendix E, to prepare your data for consolidation/migration.

To start the Geodata Conversion Utility, double click on the shortcut icon on the desktop, or from the Start menu, choose Programs, Geodata Conversion Utility. (You can also start the application through Windows Explorer by navigating to C:\Program Files\usda\Geodata Conversion Utility and double clicking on Convert2GeoData.exe.)

The first prompt will remind you to backup your files before running the tool. Click OK.

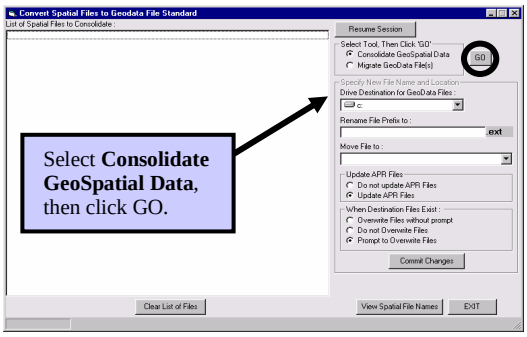


When the utility opens you will notice the two functions that are available:

1 - Consolidate GeoSpatial Data
2- Migrate GeoData Files

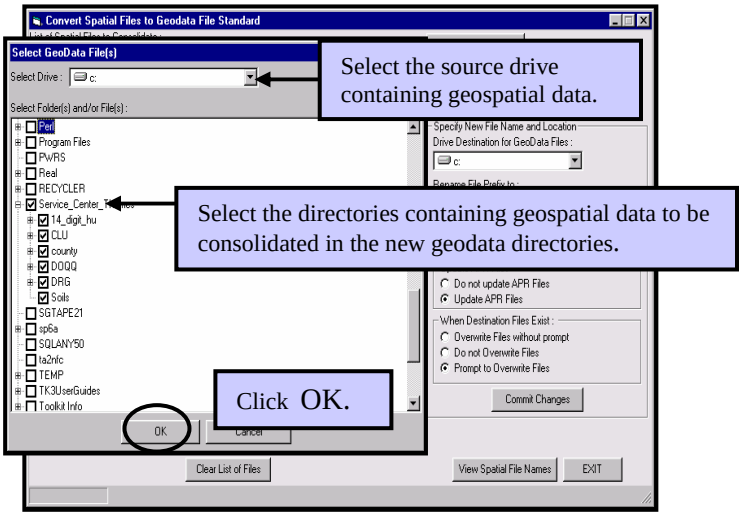
E.10 USING THE "CONSOLIDATE GEOSPATIAL DATA" TOOL:

To begin, select the Consolidate GeoSpatial Data Function then click GO.

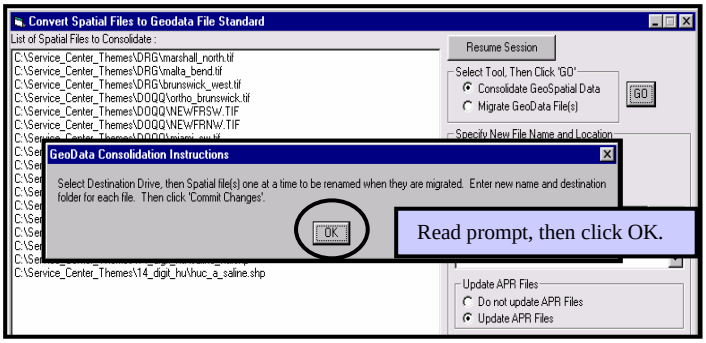


Next, select the drive containing the geospatial files you wish to consolidate from the drop down list. The default is the C: drive.

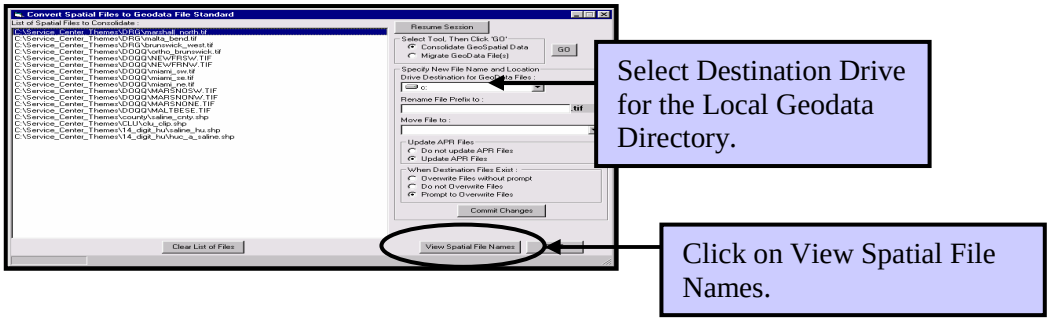
After the drive is selected a list of available directories is displayed in a new window. Place a check in the box to the left of each directory containing the geospatial files you wish to consolidate. Directories may be expanded to select specific subdirectories and/or files. You may select a few directories to consolidate at a time to better track the changes being made on your system. When you are finished selecting the directories you wish to access, click OK.



A message will be displayed instructing you to select the destination drive where you wish to move the geospatial data to. This is the local drive that will contain the new geodata directory structure. The dialog also instructs you to choose the existing geospatial files, one at a time, to rename them and to move them to the proper geodata directory.

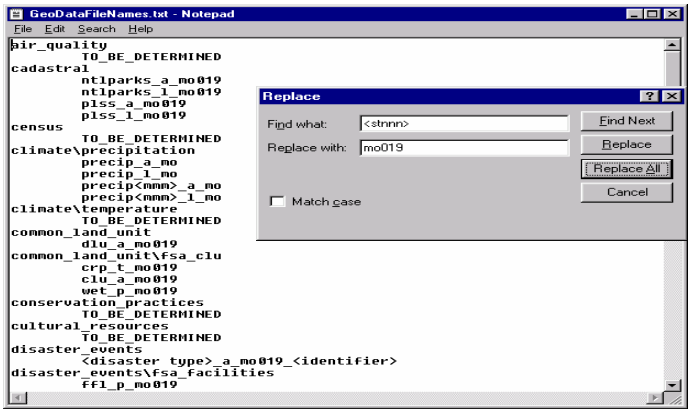


Select the destination drive for the local geodata directory. The default is the C: drive. Next click on the View Spatial Files Names button.



A text document will open in Notepad, displaying the standard geodata directory structure, with the standard file naming conventions under each subdirectory. This document can be used to copy standard filenames, and paste them into the "Rename File Prefix To:" box.

In order to customize the text for your specific location, you may use the Find/Replace functions, under the Search menu, to change many of the variables (i.e. <stnnn>) in the document to specific values (i.e. mo019). This will help limit the amount of typing necessary while renaming files.

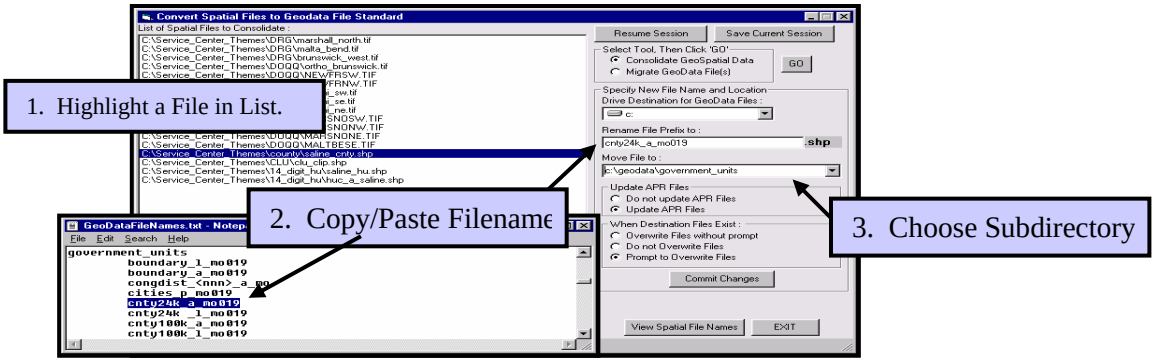


Position the text document so that you can see both the document, and the Geodata Conversion Utility window.

Highlight the first file you wish to rename from the list of geospatial files to consolidate. From the text document, copy the new filename prefix (if available) you wish to use. Paste the new filename in the "Rename File Prefix To:" box. (Note: Do not type in the file's extension, as it is already provided.) Edit the filename as necessary.

The application only allows the following characters to be used in the "Rename File Prefix To:" dialog box: lower-case alpha characters a-z, digits 0-9, an underscore (_), and a hyphen (-).

Click in the "Move File To:" box. If available, the default subdirectory will automatically be entered into the dialog box, but you may change the selection by choosing a different subdirectory from the drop down list. If a subdirectory is not automatically selected, choose the appropriate subdirectory for the geodata file.

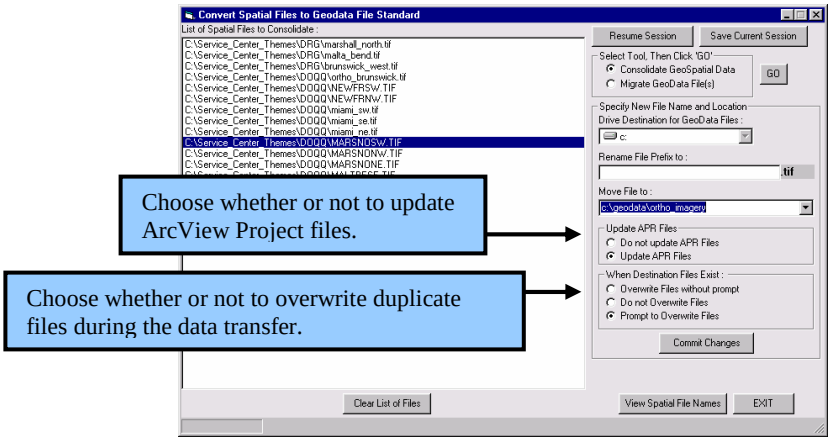


If you do not want to rename the file, you may leave the "Rename File Prefix To:" box blank, and select only the geodata subdirectory to store the file in. The original name will be preserved for the new file. This will be especially helpful if you want to move a large number of ortho images, or topographic images, and do not want to rename all of them during the consolidation. Notice the ortho_imagery and topographic_images subdirectories have been moved to the top of the drop down list for added convenience.

After you are finished with the first file, select the next file you wish to rename/move and repeat the process described above. The utility allows you to continue renaming and moving files repeatedly. (Note: At anytime during the "rename/move" operation you can stop the session and save it using the "Save Current Session" button. You may resume the session at the point you left off, by opening the Geodata Conversion Utility and clicking on the Resume Session button.)

Once you are satisfied with the file names and directory locations you are ready to commit the changes in your database.

Before clicking on the Commit Changes button, choose the "Update APR Files" and the "Overwrite Files" options you would like to use during the consolidation.

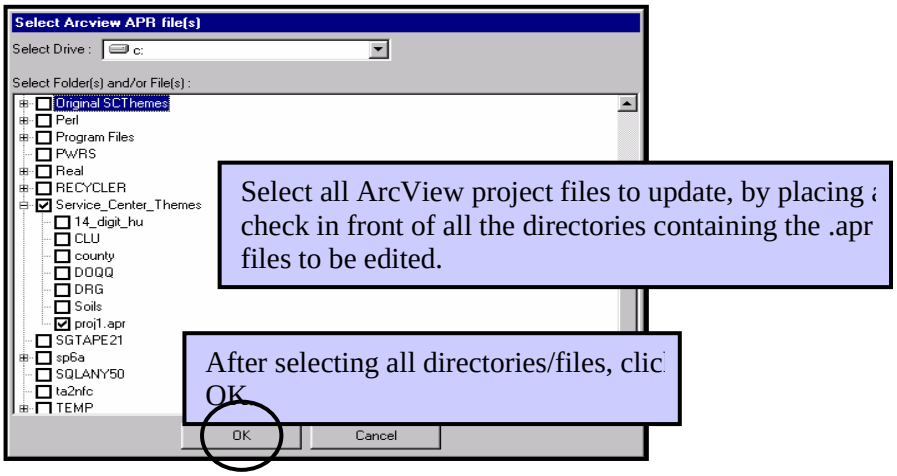


In most cases you will want to update the ArcView project files so the paths/filenames for each theme are updated, and the projects will open successfully in ArcView.

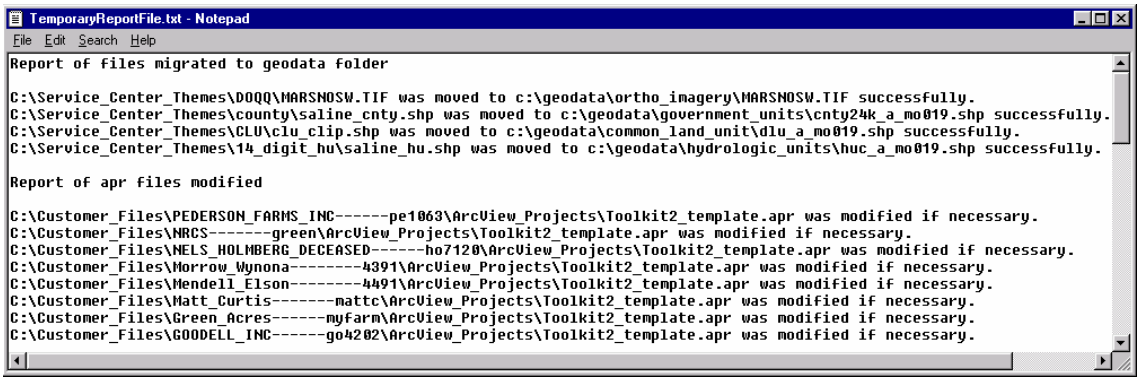
Once you have selected your options for updating ArcView project files, and overwriting duplicate files, click on the Commit Changes button.

If you chose to update ArcView project files, after committing changes a new window will open allowing you to select directories that contain the ArcView project files. The default drive is C:, but you may change it with the drop down arrow.

Check all boxes next to the directories that contain ArcView project files. Directories may be expanded to select specific subdirectories and/or files. When all directories have been selected, click OK.



The utility will begin processing the data and commit the changes you have made. A status bar will be displayed to monitor the progress as files are moved to the new geodata directory. After the utility is finished consolidating the data, and updating the ArcView project files, a report will be displayed in Notepad. The report will list the source path/filename, the destination path/filename, and the action taken for each geospatial file. It will also list actions taken on the ArcView project files.



You may print or save the report using the normal functionality provided in Notepad. When you are finished with the report, close the report window.

If you have ArcView projects located on more than one drive, immediately click on the Commit Changes button again, and select the additional source drive containing the project files. Check the boxes to the left of the directories containing the .apr files to update, then click OK. Repeat this process for each drive containing ArcView project files BEFORE continuing to rename or move additional geospatial files, or exiting the application.

Once all ArcView project files have been updated, you are ready to consolidate additional files, or migrate the geodata files to the server.

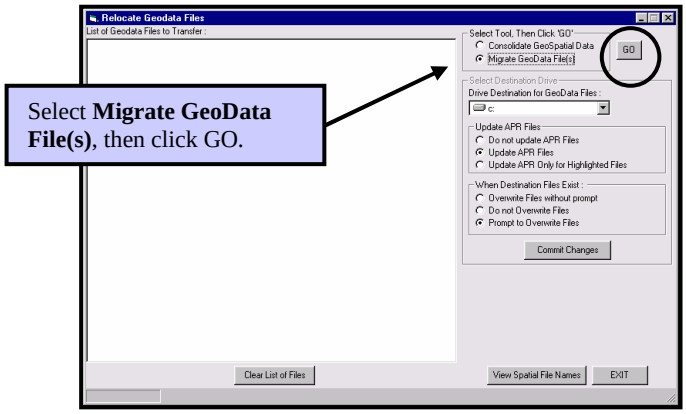
If you wish to consolidate more geospatial files, click on the "Clear List of Files" button, then click GO. Repeat the procedures described above for consolidating any additional geospatial files and updating ArcView projects files.

You may exit the application when your are finished with the data consolidation. To migrate the geodata files to the server, follow the instructions for using the "Migrate GeoData Files" tool.

E.11 USING THE "MIGRATE GEODATA FILE(S)" TOOL:

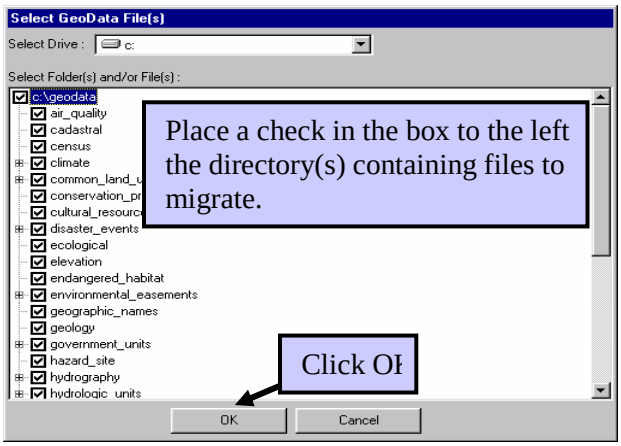
Once the geospatial data has been renamed and consolidated under the geodata directory, it is ready to be migrated to the server.

To begin, start the Geodata Conversion Utility. Select the Migrate GeoData Files option, then click GO.

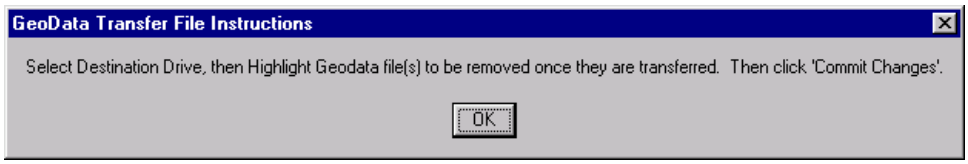


A window will open displaying the geodata directories on the C: drive (the default drive is C:, if you have geodata on a different drive use the drop down arrow and select the source drive.)

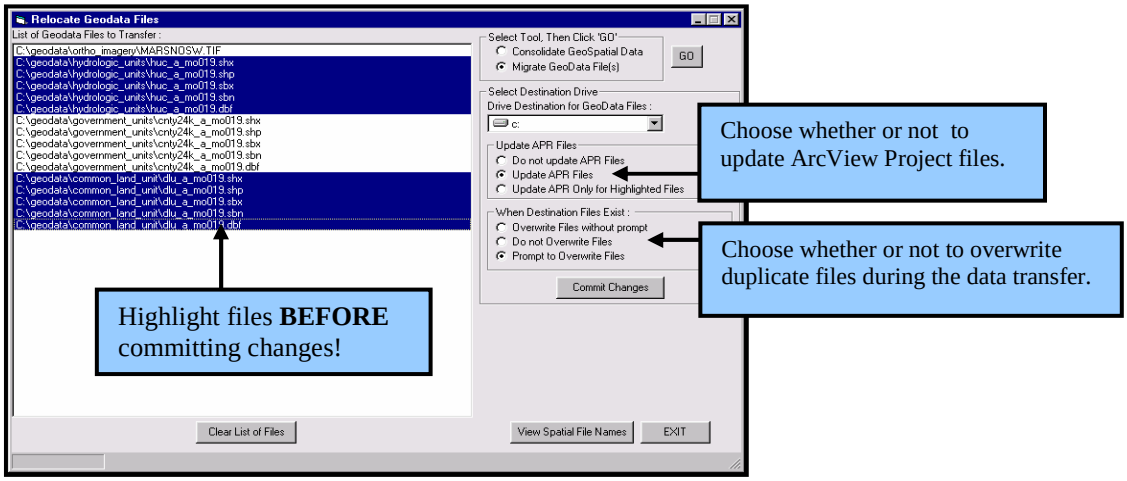
Place a check in the box to the left of all directories containing files you wish to migrate to the server. You may expand the list of directories to select specific subdirectories or files. To move the entire geodata directory, place a check in the box preceding "C:\geodata". Once you have selected the directories containing the files you wish to migrate, click OK.



A message will be displayed instructing you to select the destination drive on the server, (in most cases this will be the F: drive). The message also instructs you to choose the files you wish to remove (delete) from your local drive during the migration.



After reading the message click OK. A list of files found in the selected directories will be displayed. To highlight the individual files you wish to REMOVE from the local geodata directory during the migration, click on each of them while holding down the Control Key. (To highlight all files in the list, use the Shift key and click on the first and last filename.) If you do not want to remove files from your local hard drive, do not highlight any of the files in the list.



After all files that are to be deleted have been highlighted, select the appropriate options for updating APR files and for overwriting duplicate files. If the "Update APR Files" option is selected, the ArcView project files will be updated to find **all** geodata files on the server. If the "Update APR Only for Highlighted Files" option is selected, the ArcView project files will be updated to look at the server **only for the selected files**. All other files will continue to be accessed from the local geodata directory.

Once you have selected your options for updating ArcView project files and overwriting duplicate files, click on the Commit Changes button.

If you choose to update ArcView project files, after committing changes a new window will open allowing you to select directories that contain the project files. The default drive is C:, but you may select a different drive from the drop down list.

The new image catalog table will be displayed. Close the table. The new image catalog will be added to the View as a theme. You may turn on the image catalog to verify the theme contains all the selected images.

Close the View window. The Image Catalog is now ready to use as a theme in other ArcView projects.

To build additional image catalogs – open a New View window and repeat the process as outlined above.

When you are finished close ArcView.
For more detailed information on Image Catalogs, Start ArcView. From the Help menu, select Help Topics, and then click on the Index Tab. In the dialog box type in **Image Catalogs**, then click on the Display button

Place a check in the boxes to the left of the directories that contain ArcView project files. Directories may be expanded to select specific subdirectories and/or files. After selecting the appropriate directory(s), click OK.

The utility will begin processing the data. A status bar will be displayed to monitor the progress as files are migrated to the server. After the utility is finished migrating the data, and updating the ArcView project files, a report will be displayed in Notepad. The report will list the files that have been transferred and the ArcView project files that were updated.

You may print or save the report using the normal functionality provided in Notepad.
When you are finished with the report, close the report window.

If you have ArcView projects located on more than one drive, immediately click on the Commit Changes button, and select the additional source drive containing the project files. Select the directories containing the .apr files to update, then click OK. Repeat this process for each individual drive containing ArcView project files that need to be updated BEFORE continuing with the migration, or closing the application.

Once all ArcView project files have been updated, you may continue to migrate data by clicking on the GO button and repeating the procedures outlined above. When you are finished you may close the application by clicking on the Exit button.

E.12 POST CONSOLIDATION/MIGRATION PROCEDURES:

After completing both the consolidation and migration of the geodata files, check the original source directories for any "extra" files left behind.

The consolidation tool will not move imported ArcInfo coverages. These files will consist of unique directories and their corresponding info directories. If you wish to move these files, be sure to move the info directory with the primary directory. They must be stored together in order to access the data in ArcView.

Some examples of other files that may not be moved with the consolidation/migration tools include: soils.mdb files that may have been used with Soils Data Viewer, extra ArcView legend files (.avl files), or .dbf files that may have been joined to another table in an ArcView project (i.e. a HEL look-up table joined to the common land unit table).

These extra files may be left in their original location, or they may be moved manually to the geodata directories on the local hard drive and/or the server using the cut and paste functionality in Windows Explorer.

If the files are moved to a new directory, and they are being used in any of the ArcView projects, the .apr files will need to be edited in order for ArcView to find the data in its new location. See Manually Updating ArcView Project Files located in Appendix D.

Image catalogs files containing any files moved during the migration will need to be recreated since the file name and path contained in them will no longer be valid. The original image catalog file may be deleted, and a new one recreated using the instructions under the section entitled, Rebuild ArcView Image Catalogs, located in Appendix D.

Appendix F. – FREQUENTLY ASKED QUESTIONS

1. Why isn't the geodata folder divided first into a series of county subfolders?

   This is probably the most frequently asked question. The geospatial applications need to use a consistent data structure from Service Center to Service Center. It is easier to develop applications that access multiple area data files within a subfolder than it is to have applications search for the same type of data through multiple geographic area subfolders. The applications will be delivered with methods to support rapid identification of the correct county geospatial data.

2. Where can I store geospatial data that I have obtained from non-USDA sources (e.g., state and local governments)?

   The short answer is that the non-USDA source geospatial data should be stored in the most appropriate subfolder. In some cases the choice of subfolder will be quite obvious. For example, local high resolution color DOQ data should be stored in the ortho_imagery subfolder. In other cases there may be a short list of subfolders that might make sense. For example, BLM strip mine data may be placed in either the land_use_land_cover or geology subfolders. Consult with the state geodata administrator to better ensure consistency in these choices.